Theory into Practice in Environmental Education: Towards an evidence-based approach

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Abstract

This research addresses conceptual and practical issues in the field of environmental education. Environmental education is a compound and contested field in terms of both environmental and educational ideologies. Its practice is also influenced by perspectives of context and change. Hence, the operationalisation of environmental education might be expected to vary across different ideologies and contexts. Thus, this research attempts to explore the operationalisation from theory into practice in environmental education.

The approach of this research derives from those issues in the research context of education and environmental education that are currently of most concern. That is, policy-makers and practitioners expect researchers to answer question such as "what works?" because they face the pressure of making decisions. In response, this research attempts to shed light on the nature of environmental education by using an evidence-based approach. However, most evidence-based work in education is grounded in a post-positivistic perspective. This research, by contrast, employs evidence drawn from qualitative inquiry that recognises the significance of in-depth contextual understanding. Thus the research sits within the qualitative paradigm and employs case study methodology.

Four cases were selected: two from the UK and two from Japan. Findings were compared and synthesised. It is recommended that organisations that implement environmental education need to be clear about ideological and theoretical positions; the significance of context; and the freedom of learners. In terms of policy-making, it is suggested that governments should support a diversity of different ideological practices in environmental education; consider, particularly for international policy-making, the many varied perspectives of context and change; and, implement policy through a top-down approach that encourages bottom-up initiatives.

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Introduction

Why 'Environmental' and Why Education?

In recent years, environmental concerns and movements have reached a tipping point worldwide. They used to be the speciality of a small minority group of people. However, of late, the environment movements have been championed by a number of internationally influential people such as Al Gore and Sir Nicolas Stern, and also Sir David King in the UK. Moreover, a number of organisations, institutions and governments have started to embed environmental concerns into their institutional practices.

First of all, there is no doubt that the recent environmental campaigns have attracted a great deal of attention and made concern about environmental issues more widespread. Al Gore, the former Vice President of the US, has campaigned against climate change by lecturing and produced a film "An Inconvenient Truth" in 2006. Gore's film contains substantial scientific data on climate change with some shocking images. The film was released in over 20 countries (IMDb, http://www.imdb.com/title/tt0497116/releaseinfo) and it is estimated that the gross takings for his film were 50 million US dollars (The Washington Post, 2007, October 13). For his contribution to the climate change debate, Al Gore received the 2007 Nobel Peace Prize. Such environmental films have definitely enlightened many people who had not been interested in environmental issues before.

Also, Sir Nicolas Stern, Head of the UK Government Economic Service and adviser to the Government on the economics of climate change and development, published an economic report regarding climate change. This was the first economic forecast on the subject of climate change anywhere in the world. The Stern Report (2006) alarmed a number of economically oriented people by reporting that climate change could shrink the global

economy by 20 percent. In an interview with BBC news (2006, October 31), Stern said, “Investment now will pay us back many times in the future, not just environmentally but economically as well”. The Stern Report (2006), not only attempted to wake up the previously unconcerned public but also tried to convince the sceptics who are keener on economics and development than environmental issues. The report was attracted and responded by different sectors in the UK and Europe, and also by a number of international organisations.

More recently, Sir David King (Walker & King, 2008), the UK government’s former chief scientific adviser, with Gabrielle Walker, a science writer, published a book, “The Hot Topic: How to tackle global warming and still keep the lights on”. It attempts to clarify the misconception of global warming and set out the real problem with much scientific evidence and explores technological and political solutions. With this controversial title, this new book is already gathering attention in the public domain.

These environmental movements have contributed in popularizing environmental concerns. However, there are also a number of problems. Firstly, research by the Institute of Public Policy Research (Ereaut & Segnit, 2006), which analysed 600 articles in the UK and more than 90 other forms of media, showed that the alarmist language used in the media about climate change has distanced the public from the issue, rather than inspired them. For example, “overwhelming”, “disastrous”, “catastrophic” and “too late”, are typical of the alarmist words encountered in environmental campaigns, particularly those regarding climate change. Moreover, some writers and narrators made claims of the kind: “there is an xx percent chance of human extinction by the end of the century”. The IPPR (Ereaut & Segnit, 2006) strongly criticised these types of communications and called them “climate porn”, which is a term now used more frequently in the public domain. The research (Ereaut

& Segnit, 2006) also suggested that climate change communications should avoid apocalyptic and thrilling language.

The second issue is related to the view of science. Recently, nine scientific errors have been found in the Al Gore's movie, which came to the attention of news providers. Most of the media has overlooked these minor errors, buried within the big truth of climate change. In particular, O'Neill (2007, October 15) pointed to double standards in both "The Great Global Warming Swindle" a film that detracts from the notion of climate change (Channel 4 2007, March 4) and Al Gore's film, because of their scientific errors, regarding the latter as "a good lie". Liberal journalists in Spiked (http://www.spiked-online.com/), which is independent online publishing group led by O'Neill, have called this phenomenon 'new eco-authoritarianism'.

Frank Furedi (2008, January 15), a professor and writer, is also worried that science is being put to authoritarian use these days. In past years, "many greens blame science and technology for contributing to environmental degradation and to global warming", however nowadays "[t]he formidable influence of scientific authority can be seen in the way that environmentalists rely on science to back up their arguments". Bowers (2000, 2003), a scholar in the field of education and the environment, has completely agreed with traditional greens and has argued for the rejection of technological ways of thinking, in order to achieve ecological sustainable society. He has suggested that other forms of knowledge such as indigenous knowledge that which existed before industrialisation, should be returned to.

King might call such people "Luddites", which he implied in an interview with the Guardian (Burkeman, 2008, January 12):

> “There is a suspicion, and I have that suspicion myself, that a large number of people who label themselves ‘green’ are actually keen to take us back to the 18th or even the 17th century. ‘Let’s get away from all the technological gizmos and developments of the 20th century’,”
>
> “And I think that is utter hopelessness... What I’m looking for is technological solutions to a technologically driven problem, so the last thing we must do is eschew technology.”

King’s confidence toward science is shown in his proposal to double the number of nuclear power plants, in order to reduce carbon emissions and “still keep the lights on” (Walker & King, 2008). The question is: how much we can rely on authority, science and technology?

The third problem, in the recent environmental campaigns, is that they offer tiny behaviouristic solutions to “overwhelming” problems. O’Neill (2006, December 8) has labelled such people as “eco-miserabilists”, who are taking away our small pleasures. For example, he (O’Neill, 2006, December 8) named one association which is building smaller baths, in order to reduce domestic water use. Another example involves an energy supplier who launched a new campaign, which attempts to stop us singing in the shower, because their research showed that if you sing in the shower, it takes twice as long to wash. Reflecting this situation, O’Neill (2006, December 8) announced:

> “Welcome to the world of miserable-sod sustainable living, where you get backache from the bath, can’t have a quick power wash in the mornings, and will probably have rotten pongs emanating from a toilet that doesn’t flush fully.”

The problems that appeared in such environmental campaigns; for example, alarmist language, authoritative discourse, and enforcement for behaviouristic change, do not sound educational. That is to say, they do not concern one's freedom to decide what to do. In such environmental movements, the notion of freedom appears to be overlooked and underestimated because of the perceived urgency and necessity of tackling environmental problems. However, as discussed above, science cannot tell us the definite answer to environmental issues. This research seeks to engage with these matters.

About this Research

Social problems and research problems should be distinguished (Silverman, 2001); however, the issues presented above are paralleled in the discussion in the international academic field of environmental education. For example, the behaviouristic environmental education favours rules and regulations toward environmental behaviour as similar to the people introduced in the previous section. Particularly in the 1970s the behaviourist perspective on environmental education was dominant in the environmental education field, which was particularly represented by American academics, such as Hungerford, Penton and Wilke (1980, 1983), Roth (1970), and others. Thus the famous "monumental" (Greenall Gough 1997) documents in environmental education, the Belgrade Charter (UNESCO-UNEP, 1976) and the Tbilisi Declaration (UNESCO, 1978) (See Box 0.1), were strongly interpreted in their behaviourist approach by these authors in 1970s and 80s. For example, Greenall Gough (1993) pointed out that the key people, who were dominant in the field at the time, came from scientific backgrounds and facilitated mechanical and instrumental environmental education—e.g. environmental education is aimed at solving environmental problems. Robottom and Hart (1993) also pointed to the positivistic and behaviouristic disposition of environmental education at the time.

Box 0.1: The Belgrade Charter and the Tbilisi Declaration

The Belgrade Charter, proposed in the UNESCO-UNEP Workshop in 1975, suggested the global framework for environmental education:

> The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones. (UNESCO-UNEP, 1976)

The Tbilisi Declaration, developed in the subsequent International Conference on Environmental Education in 1977, recommended the basic principles and guidelines of environmental education:

1 The goals of environmental education are:

(a) to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;

(b) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;

(c) to create new patterns of behaviour of individuals, groups and society as a whole towards the environment.

2 The categories of environmental education objectives are:

Awareness: to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

Knowledge: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

Attitudes: to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.

Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems. (UNESCO, 1978, pp.26-7)

More recently the argument of the behaviourist environmental education was revived in the way that a special issue in Environmental Education Research (Vol. 8, No.3, 2002) featured the debate about modelling “pro-environmental behaviour”. According to Kollmuss and

Agyeman (2002), pro-behaviour means behaviour that seeks to minimise the impact of one's action to the environment., A number of academics argued against their claim; for example, O'Donoghue and Lotz-Sisitka (2002) point out the limitations of instrumental assumptions associated with pro-environmental behaviour research and perspectives; and Gough (2002) argues for the need to recognise that the concept 'pro-environmental behaviour' is problematic and he suggests for 'plural rationalities' as the basis for an alternative approach.

In these arguments, as similar to the argument in public domain introduced in the earlier section between the recent environmental movement and the criticism of liberal journalists, the key issues in this research are authority and freedom in environmental education. In order to explore these issues, firstly this research needs to address the theoretically complex and contested field of environmental education in detail. Then, such theoretical issues need to be understood in light of practice in environmental education. It addresses the two research questions:

RQ1: How does theory inform practice in environmental education?
RQ2: How can theory improve practice in environmental education?

This research was also approached from the perspective of making a practical contribution toward evidence-based policy and practice. This is motivated by the fact that the body of knowledge in education research is fragmented, unscientific, non-cumulative, and inaccessible so that there are few systematic knowledge that can support policy-making and practice implementation (e.g. Hargreaves, 1996, 1997; Tooley & Darby, 1998; Pring 2000). This issue also has been discussed in environmental education (e.g. Rickinson & Reid, 2003; Reid & Scott, 2006). However, policy-makers and practitioners expect researchers to

answer question such as “what works?” because they face the pressure of making decisions (This issue will be fully covered in Chapter 4). Thus the inquiry of this research examined systematically into the practical operationalisation of different theoretical approaches in environmental education which can provide robust findings by aiming at making suggestions toward policy and practice. It is a relatively new approach influenced by positivistic methodology, thus it is often criticised that the approach inevitably becomes quantitative. For example, actual existing forms of the evidence-based policy and practice often involves meta-analysis, systematic review, and research synthesis of the huge amount of aggregated data. However, this research explores the evidence-value of qualitative context-based methodology and employs case study. Cases are selected by systematic choices from two different countries: two cases in the UK and two in Japan.

This research does not aim to provide an overall review of environmental education in both countries which case studies were chosen from, but examines in light of how different theories are put into practice in different contexts. The term environmental education is used in an inclusive way. The terminological differences in environmental education are discussed in Chapter 1, but the term environmental education is used as an umbrella term throughout the thesis.

Outline of the Thesis

This research is about theory into practice in environmental education and examines how theory informs practice in environmental education (RQ1) and how theory can improve practice in environmental education (RQ2). This thesis consists of four parts comprising 16 chapters. It is organised in a conventional manner of PhD thesis and presented in a linear way which begins with literature review, methodology, data presentation and finishes with

analysis and discussion. Each chapter is introduced below.

Part I (Chapter 1 to Chapter 4) is a sequence of literature reviews. Chapter 1 deals with environmental education and freedom. It conceives of environmental education theories within the framework of Berlin's (2002) conception of freedom: negative freedom and positive freedom, leading to the identification of two possible types of environmental education theories; i.e. the absolutist approach and the plural approach to environmental education theories. Subsequently, the following section presents the terminological and conceptual issues, regarding environmental education. Also, it considers practice in environmental education and sets out the tentative framework of the practice in this research.

Chapter 2 recognises that examining ideology in environmental education is a key to analyse effectiveness of theory into practice. This is evidenced by the fact that many of the authors in environmental education who write about environmental ideologies in terms of polarising concepts, e.g. anthropocentrism vs. egocentrism. This chapter reviews a range of perspectives in environmentalism and investigates the implication of environmentalism from an educational perspective.

Chapter 3 contains a review of variation of contexts in relation to environmental education; particularly from the perspective of geographical, sociological, cultural and anthropological spheres. It explores the geographical comparison by discussing the work of Samuel Huntington (1993) and reviews sociological perspective; and it features the important metaphors of mechanism and organism. Also it explores cultural aspects by introducing cultural theory (Thompson, Ellis & Wildavsky, 1990). In addition, it examines the anthropological aspect.

Chapter 4 reviews literature in relation to the view of research taken, considers the substantive contribution of this research and frames an evidence-based appropriate approach. In particular, current relevant issues in educational research are taken into account. As already noted, education research is often fragmented and does not accumulate knowledge thus it is hard to make the links with policy-making and practice. Reflecting on this problem, it also examines purposes of research and then focuses on outlining evaluation and evaluation research. Given the potential limitations of such research, a justification is made for using an evidence-based approach. Also, the advantages and disadvantages of evidenced-based approach in the environmental education field are then discussed.

Part II (Chapter 5 to Chapter 8) introduces the methodology for this research. In Chapter 5, this discussion is formed around the application of evidence-based approaches, as discussed in Chapter 4. In this chapter, it firstly puts forward an ontological discussion in education and environmental education. Secondly, it focuses on the epistemology of the approach. Drawing on criticisms of the positivistic tendency within the evidence-based approach, then it asks what can count as 'evidence'; and what might be meant by 'systematic' review or 'synthetic' findings. On the basis of those considerations, it describes the strategy adopted for this research.

Chapter 6 describes the research methodology. In this chapter it considers theoretical considerations of case study methodology such as the paradigm of case study, case study design, and validity and reliability of case study. The second part of this chapter describes the case study design in this research. It includes details of methods, such as: document analysis, interview and observations and outlines a common structure of data collection for each case study in order to examine the effectiveness of theory into practice.

Chapter 7 describes the data collection implementation and explains the circumstances for each case study. The issues that arose during the fieldwork are examined and data source triangulations are discussed for each case study. In addition, it explains the experience which is related in terms of the researcher's identity and conceptualised as what it has meant to be a "halfie researcher" (Abu-Lughod, 1991) in environmental education research.

Chapter 8 focuses on case study reporting and data analysis methods. It sets out the ways used for the case-study reporting and the methods used for analysis. More specifically, the way of data presentation is considered and the general strategy for qualitative data analysis is reviewed with a focus on thematic analysis. Then, the issues around computer aided analysis are discussed in order to facilitate a decision on selecting software. In addition, the actual procedure of thematic analysis is demonstrated.

Part III (Chapter 9 to Chapter 12) presents the case study reports. Chapter 9 (Case study one) covers an initiative of learning for sustainable development in the Formal Education Team in the World Wide Fund For Nature in the UK (the WWF-UK). Chapter 10 (Case study two) examines an initiative on education for sustainable development in Japan. It focuses on the Japan Council on the UN Decade of Education for Sustainable Development (the ESD-J). Chapter 11 (Case study three) examines deep ecological learning practice in the Schumacher College in the UK. Chapter 12 (Case study four) introduces traditional environmental learning in apprenticeship in Shrine carpenter group in Japan: Ikaruga Kousha.

The last part, Part IV (Chapter 13 – Chapter 16) analyses and discussed the case studies and presents conclusions. Chapter 13 begins by analysing whether the theory-led codes derived

from the literature review are justified for four case studies and makes comparisons between them. Chapter 14 discusses and compares a practice of four case studies. Chapter 15 analyses four case studies in light of the analytical framework of effectiveness which was explored in literature review. Chapter 16 syntheses the analysis in previous chapters and presents synthesized findings, recommendations towards practice and policy-making. Also it highlights the theoretical contribution of this research.

Summary of the Introduction

This introduction described the initial interest from the discussion across the public domain and described issues in the field of environmental education. That is, the tension between freedom and the seriousness of the environmental and sustainability problem which invites the authoritative approach. In order to explore this issue, it set out the two research questions in order to explore the operationalisation of theory into practice in environmental education. In the last section, it presents the outline of the thesis which comprises four parts (Part I Literature Review; Part II Methodology; Part III Case Study Report; and Part IV Analysis and Discussion) which includes 16 chapters.

Chapter 1

Environmental Education and Freedom

This research is about the operationalisation of theory into practice in environmental education and examines how theory informs practice (RQ1) and how theory can improve practice (RQ2) in this field. In the first process of such an investigation, it is necessary to understand and classify the range of theoretical perspectives that exist regarding the subject environmental education. This chapter considers environmental education theories within the framework of Berlin's (2002) conception of freedom: negative freedom and positive freedom (1.1). Subsequently, in the following section the complex terminological and conceptual issues, regarding environmental education are presented (1.2). Finally, different approach to the curriculum and subsequent practice that emanates from this are discussed in environmental education (1.3).

1.1 Two Different Approaches to Environmental Education

As mentioned in the introduction, authority and freedom are key issues in discussions of environmental education theories. Berlin's (2002) two concepts of freedom, negative and positive, are posited as being useful for categorising different theoretical approaches to environmental education. According to Berlin (2002), negative freedom is present when an individual's choice is not constrained by others. Positive freedom consists in being one's own master. Berlin notes that these conceptions are not, on the face of it, very different. However, their development through history has diverged.

Positive freedom carries with it an implication that persons are divided against themselves. Their freedom may be limited by their own weakness, or by acts of deception or

exploitation by others. Therefore, anyone who carries a strong conviction that human beings should be a particular way, may wish to conclude that they also would, naturally, be that way, if only their weaknesses could be tamed or their deceivers or exploiters exposed. The next step in this line of reasoning may be - and, according to Berlin, all too often has been – to decide that the ultimate test of freedom is whether those persons are, in fact, behaving as desired. If they are not, it may next be decided that action to make them 'free' – that is, to overcome the perceived weakness, deception or exploitation - is justified. As Berlin particularly notes, the action chosen in such cases has often been education of some kind.

Negative freedom, on the other hand, says a person is free if he or she can do as they please. It may be exercised wisely or not, and is likely to lead to both successes and failures.

1.1.1 Discussion in the methodological context

In terms of methodology in environmental education, the distinction of positive freedom and negative freedom also can be seen in behaviourist, socially-critical and other methodological approaches.

Firstly, in the 1970s the positivist perspective on environmental education was dominant in the environmental education field, which was particularly represented by American academics, such as: Hungerford, Penton and Wilke (1980, 1983), Roth (1970), and others (See Greenall Gough, 1993). For example, Greenall Gough pointed out that the key people who took forward these policy initiatives came from scientific backgrounds and facilitated mechanical and instrumental environmental education, e.g. environmental education was aimed at solving environmental problems. Robottom and Hart (1993) also pointed to the positivistic and behaviouristic disposition of environmental education at the time.

Criticising positivistic and behaviouristic environmental education emanating from the US in 1970s, a socially-critical view emerged, initially through Fensham (1978), Linke (1980), Lucas (1979) and then Robottom (1993) in Australia. Lucas was not himself taking a socially-critical position, however, he conceptualised three fold environmental education (about, through and for) which strongly influenced the development of the socially-critical perspective of environmental education. According to the socially-critical perspective, definitions of environmental education frequently referred to three types of environmental education: education about the environment; education through the environment; education for the environment (Lucas, 1991; Fien, 1993). Fien (1993a, p.16) summarised the situation as follows:

- *Education about the environment* was a common form of environmental education and traditional way of learning knowledge about ecosystems and processes of nature;
- *Education through the environment* emphasised learning experience of learners in the environment and took a learner-oriented approach;
- *Education for the environment* was a challenge to the way of uncritical educational practices which accept and change a taken-for-granted and conventional way of interpreting people-environment relations (Fien, 1993a, p.16).

With regards to this categorisation, Fien expressed a preference for the last one, that is education for the environment. Exponents of this perspective regard environmental problems as a social issue and view it is the only form that can be called environmental education, and such academics have been labelled themselves as having a socially-critical view. Robottom and Hart (1993) assigned to the different components of the above

categorisation the terms: positivism, interpretivism and socially-critical, respectively, in their paradigm regarding environmental education research. According to them, positivism orients trust in science and values objectivity, whereas interpretivism begins with a critique of the positivist and is based on a relativist ontology. Socially-critical theorists also criticise the positivist perspective and preferred to engage in ideological inquiry.

This categorisation of 'about/through/for' was widely accepted at the time by the socially-critical group of theorists, however, this was subsequently contested, and eventually, ignored. A number of people made criticisms, some of which were based around the concept of negative freedom. A range of issues were raised, for example, 'education for the environment' was considered as potentially little more than a slogan without sufficient analysis to back it up (Jickling & Spork, 1998). Similarly, although socially-critical theory could be effective for critiquing practice, it has failed to provide strategies to solve educational issues (Walker, 1997). It has been further criticised for taking a modernist world view, thereby having an anthropocentric orientation and placing emphasis on individual empowerment (Bowers, 1987, 2001, 2002). Furthermore, Scott and Oulton (1999) made the point that education 'for' something is based on an inappropriately instrumental view of education. Following these criticisms, the socially-critical view on environmental education was marginalised in the academic field. However, the instrumental view of education represented as 'for' still remains in the recent policy initiative "Education for Sustainable Development" (UNESCO, 2005).

1.1.2 Discussion in the policy context

Sustainability policy is closely linked with environmental education policy. In the international policy context, sustainable policy appeared in Agenda 21 revealed at the UN Conference on Environment and Development in Rio de Janeiro in 1992 and also in the

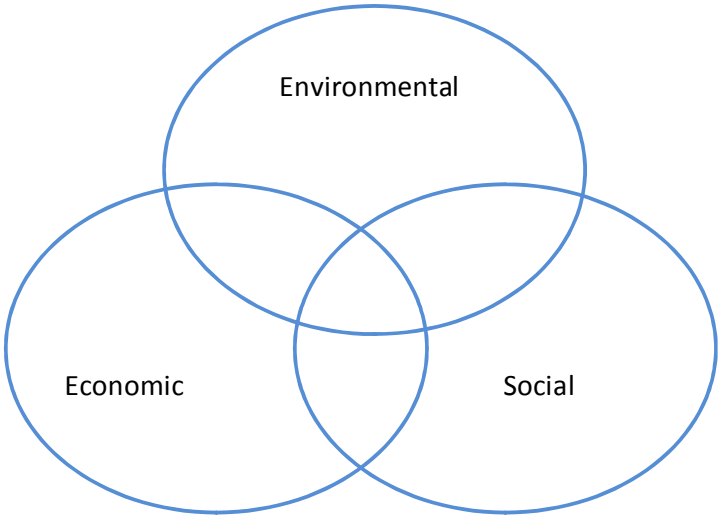
International Conference on Environment and Society in Thessaloniki in 1997. Since then, the concept of sustainable development has become strongly linked with some modern educational discourses. In 2002, the United Nations General Assembly adopted the United Nations Decade of Education for Sustainable Development (2005-2014). This aims to "promote education as a basis for a more sustainable human society and to integrate sustainable development into education systems at all levels" (UNESCO, 2006, http://portal.unesco.org/education/en/ev.php-URL_ID=27234&URL_DO=DO_TOPIC&URL_SECTION=201.html).

The term 'sustainable development' originated in 1972 at the Stockholm Conference. Afterwards, the concept was popularized in 1987 in the Brundtland Report (otherwise known as the report of the World Commission on Environment and Development, 1987), which subsequently gave the most quoted definition of sustainable development. Their definition of sustainable development was given as "meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p.43). Since then, sustainable development is has become a central concern for policy making. Kofi Annan (2001, p.2) stated: "Our biggest challenge in this new century is to take an idea that sounds abstract—sustainable development—and turn it into reality for all the world's people".

There have been three key approaches to interpreting the term sustainable development. First, there is the 'three pillars' model which considers the: environmental, social and economic dimensions (e.g. UN DESA, 2002) (See Figure 1.1). This is the most frequently used figure treatment to explain the phenomenon. An alternative model that has been developed is the 'four capital model', which includes: economic capital, social capital, human capital and natural capital (Ekins & Medhurst, 2003). Finally there is the 'triple

bottom line' model which comprises the categories: people, the planet and profit (Elkington, 1998).

Figure 1.1: 'Three pillars' of sustainable development



The concept of sustainable development has faced the serious criticism that it eludes clear definition. According to Dobson (1996), there are more than 300 different definitions of it in circulation. Turner II (1997 in Gough & Scott, 2001, p.138) concluded that the concept of sustainable development had been described as: "an oxymoron", "a right wing political stratagem", "a left wing political stratagem", "a capitalist-inspired smokescreen", "based in a misunderstanding of the nature of 'development'" and "based in a misunderstanding of the nature of the ecological processes". Bhagwati (2004, p.156) also described it as an "anything-you-want-it-to-mean term" and remarked, "Even God does not know what *sustainable development* means" (italic in original).

With regards to environmental education, Bonnett (2002a, 2002b) argued that sustainability should not be seen as a policy and rather that it should be conceived as a 'frame of mind', in order to explore various epistemological and ethical issues, in particular those regarding

views of nature. More specifically, he argued that we should focus on questions such as "what constitutes a right relationship with nature?" and "what should be our basic stance towards the natural environment?" in relation to human attitudes and identity. That is, by examining these questions, he arguing for the need to focus on the essence or root of sustainability: the nature of human consciousness itself. This perspective lies somewhere in between the conventional anthropocentric and ecocentric traditional approaches, and involves the qualities of openness, responsiveness and responsibility. In essence, Bonnett has been arguing for a breakaway from top-down policy directives towards more plural bottom-up interpretivist approach, that is he supports negative freedom.

In the same vein, Foster (2008) criticised the current sustainable policy as a "mirage", in that it is hard to pin down and consequently difficult to act on any of its recommendation. According to him, current sustainable policy, in general, has been pursuing cost-benefit bargaining and has aimed at lifestyle change. However Foster has argued this transmissive policy approach has been preventing the open and creative exploration of the concept of sustainability. In order to achieve such an outcome, widening people's options is crucial and thus building a new relationship between education and sustainability is vital. The role for education must be developing the capacity for critical thinking in order to explore 'deep sustainability'. Deep sustainability was distinguished by Foster (2002) from bioeconomic sustainability which is associated with political and social institutions in order to secure current and future conditions. By contrast, deep sustainability is oriented towards value and belief in order to embody traditions, institutions and practice. In his argument, both aspects of sustainability are significant, but the emphasis is on deep sustainability.

To summarise, the discussion on the policy in sustainable development in relation to environmental education can be also understood by the two conception of freedom: positive

and negative. While the approach of such policies orient towards positive freedom which individuals are considered primarily as members of given collectives and need to follow the policy regulations, Bonnet and Forster attempt to criticise those policy discourse from the perspective of negative freedom which attributed to individuals as change agents towards sustainability

1.1.3 Discussion of the perspective of different paradigms

The discussion, in terms of the perspective of paradigm, can be also conceived of as lying within the framework of positive and negative freedom. The socially-critical perspective on environmental education has criticised the current "Dominant Social Paradigm". This has argued against the process of intellectual control by the most powerful groups within society, and as an alternative a "New Environmental Paradigm" has been offered (e.g. Cotgrove, 1985; Milbrath, 1984; Dunlap & Van Liere, 1978). Drawing on these academics' work, Fien (1993a, p.4) summarised their positions as:

> "The Dominant Social Paradigm views nature as subservient to human needs and economic growth. The New Environmental Paradigm views people and nature as interdependent. Values in the New Environmental Paradigm include: a high regard for nature; respect for future generations; support for careful planning in order to minimise threats to nature and the quality of life; and a desire for change in the way most societies conduct their economic and political affairs."

Fien further discussed this New Environmental Paradigm and classified it into several different perspectives. Eventually, based on one of the environmental views, that is, the eco-socialist view, he devised his environmental education theory, which sought to make a contribution towards "the process of social change through educational activities which

promotes personal and structural formation" (Fien, 1993a, p.29).

This approach can be conjoined with positive freedom to offer a new paradigm, i.e. bring about the change from a dominant paradigm to an ecological paradigm. However, certain issues related to this arise: Whose paradigm change? Who is the agent of change for asserting a new paradigm?. In most of the case, the change agent is an academic. That is to say, positive freedom seeks to make people free by helping them overcome their own unsatisfactory preferences and finding a new truth known to the theorists or educators. On the other hand, a negative freedom approach would let people choose what they want and need.

Other theorists, who do not adopt the socially-critical standpoint have, likewise, been putting forward the argument for a paradigm shift or change. For example, Sterling (2001, pp.58-9) described the contrast between the mechanistic worldview and the ecological worldview of education and supported an ecological paradigm for education, with the emphasis placed on participation, empowerment and self-organisation. In his research Sterling (2003) has attempted to conceptualise the 'emerging' Postmodern Ecological Worldview[1], by defining postmodernism as a negation of the mechanistic view of dualistic thought. His concept of postmodernism promotes the idea of 'whole systems thinking' as a basis for a paradigm change. However, it could be argued that imposing a shift of paradigm in this way is paradoxical to the notion of a postmodernist pluralism which he has appeared to support his writing.

[1]Sterling (2003) described the Postmodern Ecological Worldview by drawing on Merchant (1994, p.17). He wrote about a postmodern ecological worldview based on: interconnectedness, process and open systems, as compared with the Enlightenment ethic, which was based on Western culture and featured mechanistic and reductionist science.

In sum, what these theories have attempted to achieve is a new "story" or "vision" for a better environment or sustainable development, whatever it may mean. That is to say, according to socially-critical views, education is regarded as a tool for telling the new story. This is the case with Sterling's (2003) theory, even though he does not take the socially critical position, in that he has been pursuing paradigm change through directing shifts in whole systems thinking, in order to achieve a postmodern ecological worldview.

1.1.4 Discussion on the ontology

Discussion in terms of ontology in environmental education can be also considered within the framework of positive and negative freedom. On the one hand, forcing changes through pedagogies, such as behaviourist environmental education can be termed as positive freedom activities. By contrast, pedagogies that support negative freedom allow for the development of pluralistic interpretation of viewpoints and shun coercive practices. In such a view, learning is not just regarded as instrumental and they appreciate the need for a greater variety of forms for individual and collective learning. The key idea on such ontological discussion distinguished into positive and negative freedom is, trust in human nature. A negative view of freedom is modest in scope: people can make their own choices within the limitation of tolerance. In such a view, living with learning by trial and error is a part of life. A strong positive freedom view, by contrast, involves the belief that people need to be brought to a realisation or enlightenment of truth—at which point academics or experts will begins with making "right" decisions.

As for the ontology orients negative freedom, Scott and Gough (2003) drew on the co-evolutionary view as a key concept in developing the possibilities for sustainable development and learning. They explained that the relationship between society and environment as being co-evolutionary, by drawing on Norgaard's (1984, p.528 in Scott &

Gough, 2003, p.8) involvement with agricultural development. He noted that human activities "modify the ecosystem, while the ecosystem's responses provide cause for individual action and social organization". Therefore, Scott and Gough (2003) have claimed that environmental education needs to understand multiple forms of human rationalities which co-evolved with the nature.

In the same line of thought, the concept of 'education as sustainability' has been offered by Foster (2001). Criticising the statement 'Education for Sustainability' offered by Huckle and Sterling (1996) which orients the positive freedom approach, Foster (2001) argued that education and sustainability cannot be external to sustainability. In the other words, education cannot be an instrument for achieving sustainability, and instead, sustainability itself is a learning process. He suggested that "the root idea of environmental concern is that modern humans should find ways of consciously living with the grain of nature" (Foster, 2001, p.156), which can see a basic trust in humanity.

1.1.5 Towards the classification of the absolute and plural approach to environmental education

So far the section has examined environmental education by considering aspects of methodology, policy, paradigm, and ontology in the Berlin's categorisation of positive freedom and negative freedom. The view of positive freedom is widely held whereby writers criticise the status quo which they implicate as being an environmental crisis and argue that there is a need for change. The focus of their criticism is often the current dominant frame of thinking, such as the paradigm that has caused an unsustainable world; therefore they suggest an alternative paradigm. More importantly, in such approaches, the aim of environmental education is very clearly to alleviate or improve the situation of an

environmental crisis. On this basis, the approach of such theories might be referred as the 'absolute' approach.

The view of negative freedom is more concerned about the significance of plural views and the repudiation of authoritative coercion. In this sense, this alternative approach can be identified as the pluralist approach to environmental education. The point of the pluralist approach is that it values human freedom in attempting to achieve sustainability. For those who support the pluralist approach, achieving sustainability without freedom, e.g. controlling the population as an extreme example, is nothing short of harmful. This does not mean to say that sustainability and freedom are in opposition and that they are not achievable at the same time, but in this approach, both sustainability and human freedom are valued to the same extent. Moreover, it could be argued that the socially-critical perspective promotes individual freedom in that it encourages an individual to criticise society. However, from the socially-critical perspective, in some societies, especially those of an authoritarian nature, the state does not empower people, through education to challenge existing perspectives. In this sense, this approach respects the other rationalities and context. Berlin (2002, p.216) stated the following with regards to pluralism:

> "Pluralism, with the measure of 'negative' liberty that it entails, seems to me a truer and more humane ideal than the goals of those who seek in the great disciplined, authoritarian structures the ideal of 'positive' self-mastery by classes, or peoples, or the whole of mankind. It is truer, because it does, at least, recognise the fact that human goals are many, not all of them commensurable, and in perpetual rivalry with one another. To assume that all values can be graded on one scale, so that it is a mere matter of inspection to determine the highest, seems to me to falsify our knowledge that men are free agents, to represent moral decision as an operation which a

> slide-rule could, in principle, perform. […] In the end, men choose between ultimate values; they choose as they do because their life and thought are determined by fundamental moral categories and concepts that are, at any rate over large stretches of time and space, and whatever their ultimate origins, a part of their being and thought and sense of their own identity; part of what makes them human."

This is a quote from a lecture delivered by Berlin in 1958 and one might wonder whether he could have ever imagined that sustainability would be a significant issue in the 21st century. However, given that he stated that change takes place "over large stretches of time and space", the question is how his view of pluralism would be implemented as a solution for the pressing environmental and sustainability issues of today.

1.2 Complex Concepts and Terminologies in Environmental Education

Complex and compound discussions within the categorisation of positive and negative freedom can lead to confusion regarding the concepts and terminologies used in environmental education. This section seeks to clarify some of the complex terminology used in the field.

Some academics in the environmental education field (e.g. Fien, 1993b; Tilbury, 1995; Fien & Tilbury, 1996; McKeown & Hopkins, 2003, 2005) have positively embraced the concept of sustainable development, whereas others (e.g. Jickling, 1992) have challenged it. Yet a number of academics have striven to understand the relation between sustainable development and environmental education. This relation might be thought of in terms of Aristotelian logical connections between environmental education (EE) and education for sustainable development (ESD), such as: EE=ESD; EE≠ESD (Mckeown & Hopkins 2003);

EE<ESD; EE>ESD. Hesselink et al. (2000) and Sterling (2005) have specified the following possible patterns:

- EE is synonymous with ESD
- EE is a component of ESD
- ESD is a component of EE
- ESD and EE partly overlap
- ESD as a stage in the evolution of EE
- EE is a better term than ESD and the latter should be done away with.
- ESD is a better term than EE and the latter should be dropped.

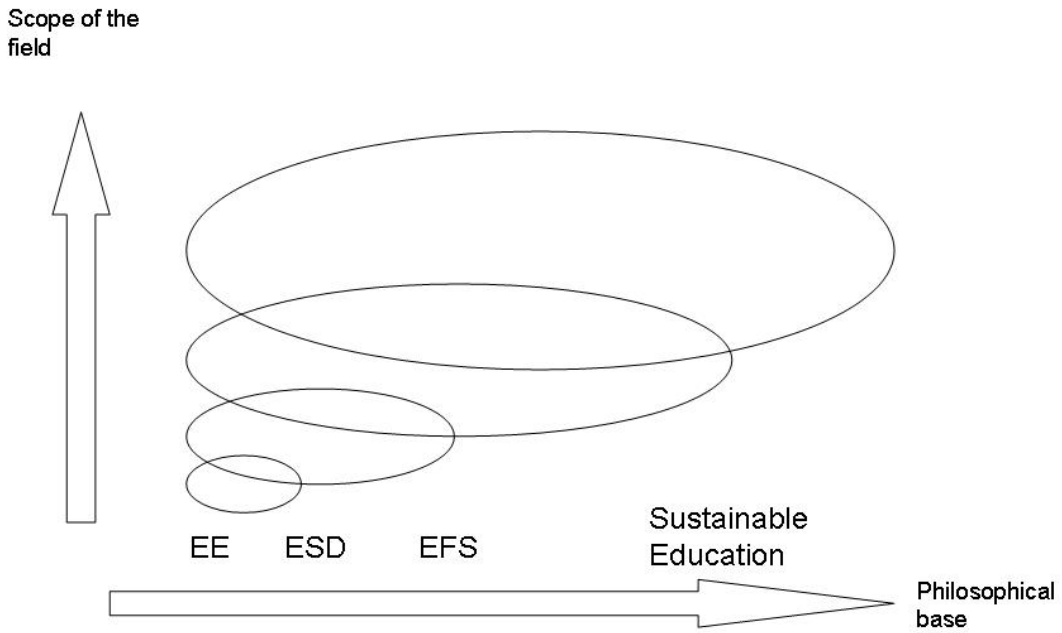
Adopting an alternative position, the relationship might be conceived metaphorically and the relationship between EE and ESD might be considered to resemble a Möbius Strip (Reid & Scott, 2006). The Möbius Strip is a strip of paper which is joined at the ends after a single half twist. Reid and Scott (2006, p.575) explained that EE and ESD appeared to be "two distinct entities", which like the strip have only a single side and a single edge. Alternatively, the latest international statement of environmental education, the Ahmedabad Declaration, states that "Environmental Education processes support and champion Education for Sustainable Development" (UNESCO, 2007) In recent years, the debate has become more complicated because of the emergence of various compound terms around environmental education and sustainable development (elaborated from Nikel, 2005), such as:

- Environmental education for sustainable development (Sauvé, 1996)
- Environmental education for sustainability (Tilbury, 1995, 2004)
- Education for sustainable development (UNESCO, 2005)
- Education for sustainability (Taylor et al., 2003)

- Education for a sustainable future (UNESCO, 1997)
- Learning for sustainability (WWF-UK, 2004)
- Education as sustainability (Foster, 2001)
- Sustainable development education (used as an umbrella term by Reid & Scott, 2006)
- Sustainable education (Sterling, 2005)
- Sustainability education (used as an umbrella term by Sterling, 2005)

Sterling (2005) has opted to use 'sustainability' education as a catch-all word, including 'sustainable' education, which he conceptualised by himself. According to Sterling (2005, p.49), the development of the terminology in environmental education can be understood in relation to the horizontal and vertical dimensions: the horizontal dimension refers to the scope of the field and the vertical dimension refers to the philosophical base.

Figure 1.2: Evolution of key terms from Sterling (2005, p.50 – adopted from Figure 4.1)



(Note: EE=environmental education; ESD=education for sustainable development; EFS=education for sustainability.)

This figure facilitates understanding of the direction of development of terminology in environmental education; however, it also invites critique. For example, for those who support "ESD is a component of EE", the scope of environmental education could be wider than education for sustainable development. This is because environmental education can include: conservation education, outdoor education, pure environmental science and so on, which may be excluded from education for sustainable development. Moreover, those who believe "EE is synonymous with ESD" would argue that environmental education has encompassed social and human orientations, in accordance with the Tbilisi Declaration (UNESCO-UNEP, 1978).

On the other hand, the position of "EE is a component of ESD" is similar to Sterling's figure. This position which education for sustainable development has a wider boundary than environmental education includes more social and economic aspects. This is because, with this perception, i.e. EE is a subset of ESD, environmental education only deals with nature and conservation. Additionally, it can be argued that environmental education has been developed from solving problems, whereas the aim of education for sustainable development is more about improving the quality of life.

Also form the point of the view that "EE is a component of ESD", Sustainable education in Sterling's figure might be a more narrowed scope compared with that of education for sustainable development, in terms of economic and social values. However, from Sterling's (2005, p.49) view, he has explained that sustainable education has "both the grounding and possibility of a change of educational paradigm as a whole", as compared with education for sustainable development, which is unable to perform this role.

So far, this section demonstrates a discussion of the terminology surrounding environmental

education. Although this researcher respects the different meanings and concepts carried by particular terminologies, for this thesis environmental education as an umbrella term is adopted, one which includes all education related to environmental education and sustainable development. Given that the discussion of terminology has already revealed the compound and complex, it is to be expected that any discussion about practice in the field of environmental education is also likely to be multifaceted and complex. Thus this issue about the practice follows in the next section.

1.3 Curriculum Approaches

The complexity of theoretical perspectives and terminologies can be followed through to an extended discussion of practice in environmental education. Fien's work (1993a, 1993b, 2000) has made one of the most influential contributions to categorising practice in environmental education and from this his theory of "education for the environment" has emerged. Fien (1993a) divided the educational perspectives into three types: vocational/neo-classical, liberal/progressive and socially-critical. For Fien and other socially-critical theorists, the socially-critical form is the most helpful ideology for creating what he has called 'a fairer and less troubled world in which to live' (Huckle, 1983, p.153 cited in Fien, 1993a, p.23). These ideologies are summarised as follows (Fien, 1993a, pp.19-23):

- Vocational/neo-classical education is seen as 'a preparation for work' (Kemmis, Cole & Suggett, 1983, p.9). This ideology includes an instrumental view of the role of schools in society, a view of knowledge as 'scientifically objective', a foundation in behaviourist learning theory, an emphasis on exposition and other forms of closed

teaching, teacher authority and firm classroom control, homogeneous and streamed class groupings, and rigid subject boundaries and assessment standards .

- Liberal/progressive education is understood as 'preparation for life'. Kemmis (1983, p.3) argued that the liberal/progressive education ideology fails to recognise the wider social, economic and political causes of non- or under-achievement, and sustains the 'job-slots expectations' of the vocational/neo-classical orientation. Thus, liberal/progressive education 'tacitly approves the reproduction of the social relations of society' and by default, serves conservative interests.
- Socially-critical education is founded upon a belief in the need for education to play a role, along with other social institutions and agencies, in creating just and democratic societies. Recognising that education can never be ideologically neutral, the socially-critical orientation is committed to active pedagogical initiatives aimed at promoting social justice, equality and democracy through the 'thoughtful ethically based, responsible and critical examination of social problems and active participation in developing a continually improving society' (Stanley & Nelson, 1986, p.529).

Fien and the socially-critical environmental education academics were influenced by the work of socially-critical curriculum theorists (especially Kemmis and other critical pedagogy theorists), and critical pedagogists (e.g. Freire, Giroux and others). In short, socially-critical curriculum theory, influenced by reproduction theory of Pierre Bourdieu (e.g. Bourdieu & Passeron, 1990) and critical theory of Habermas (e.g. Habermas 1978), has conceptualised as an educational approach to help learners acquire critical awareness and empower them to be emancipated from a certain kind of domination (Kemmis & Fitzclarence, 1986). As for critical pedagogy, Giroux (1987, p.120) argued that it aims at achieving real democracy in schools and empowering students as "critical thinkers and transformative actors". Another earlier critical pedagogy theorist, Freire (1974, p.75)

believed that “to speak the true word is to transform the world” and proposed the concept of problem-solving education that was very concerned with revealing the problems of society.

Interweaving both environmental and educational ideology, Fien’s argument goes as follows: education about the environment (i.e. positivist environmental education) “emphasises teaching facts, concepts and generalisations about environmental patterns, processes and problems” (Fien, 1993a, p.40). It is underpinned by a technocentric environmental ideology and a vocational/neo-classical educational ideology. Also, education through the environment (i.e. liberal/interpretivism environmental education) “uses the environment as a medium for education” (Fien, 1993a, p.42) and reflects liberal/progressive educational ideology and ecocentric values. That is to say, it tends to place an emphasis on personal values and has a lack of political and moral awareness.

This is a useful basis for further development of the argument, regarding environmental issues being introduced into education. However, Fien’s conceptualisation of education is flawed, according to C.A. Bowers. Bowers (1991, 2001, 2002) claimed that critical pedagogies and socially critical theorists overlook the “root metaphor” embedded their theory, which has: an anthropocentric orientation, a lack of a holistic view, a concern with the empowerment of rational individuals who constitute the basic social unit, and an emphasis on rationality over spiritual forms of knowledge and experience. Critical pedagogy theorists have tried to change this root metaphor, but the evidence suggests that they have failed to do so and as Bowers put it:

> “Contrary to their [critical pedagogy theorists’] claims, the practice of a critical pedagogy does not lead to individual emancipation and social justice; rather it reinforces a subjectively centered individualism required by the consumer,

> technologically dependent society. While they are highly critical of the capitalist foundations of society, the root metaphors that underlie their prescriptions for change create a double bind they fail to recognise." (Bowers, 2002, p.23)

The quote implies that when the root metaphor is not recognised, it would be difficult to change the old paradigm into a new one. Although Bowers (1991, 2001, 2002) pointed out the issue of socially-critical environmental education, in terms of the contradictory ideology, Sterling (2001; Huckle & Sterling 1996) offered a view of education, partially influenced by socially-critical environmental education, but developed in his own way. Four different purposes of education were classified:

- To replicate society and culture and promote citizenship—the *socialization* function;
- To train people for employment—the *vocational* function;
- To develop the individual and his/her potential—the *liberal* function;
- To encourage change towards a fairer society and better world—the *transformative* function (Sterling 2001 p.25, italic in original).

Sterling (2001) distinguished these four purposes into two values: intrinsic and instrumental. According to him, the liberal function of education is oriented in intrinsic values, whereas the socialisation and vocational functions are instrumental values. Moreover, on the basis of the purposes and values of education, he further identified the two approaches of education, namely: transmissive and transformative as seen in Table 1.1.

Table 1.1: The differences between transmissive and transformative education (Sterling, 2001, p.38 – Table 1)

TRANSMISSIVE	**TRANSFORMATIVE**
Instructive	**Constructive**
Instrumental	Instrumental/intrinsic
Training	Education
Teaching	Learning (iterative)
Communication (of 'message')	Construction of meaning
Interested in behavioural change	Interested in mutual transformation
Information-'one size fits all'	Local and/or appropriate knowledge important
	Local ownership
Control kept at centre	First and second order change
First order change	Process oriented
Product oriented	'Problem-reframing' and iterative change over time
'Problem-solving'-time-bound	
	Responsive and dynamic
Rigid	Conceptual understanding and capacity building
Factual knowledge and skills	

The key point here is, as with socially-critical environmental education, the transformative approach is the basis for the development of Sterling's theoretical argument for sustainable education. The same criticisms which were made regarding socially-critical environmental education might apply to Sterling's theoretical stance, in that education does not have only an instrumental value.

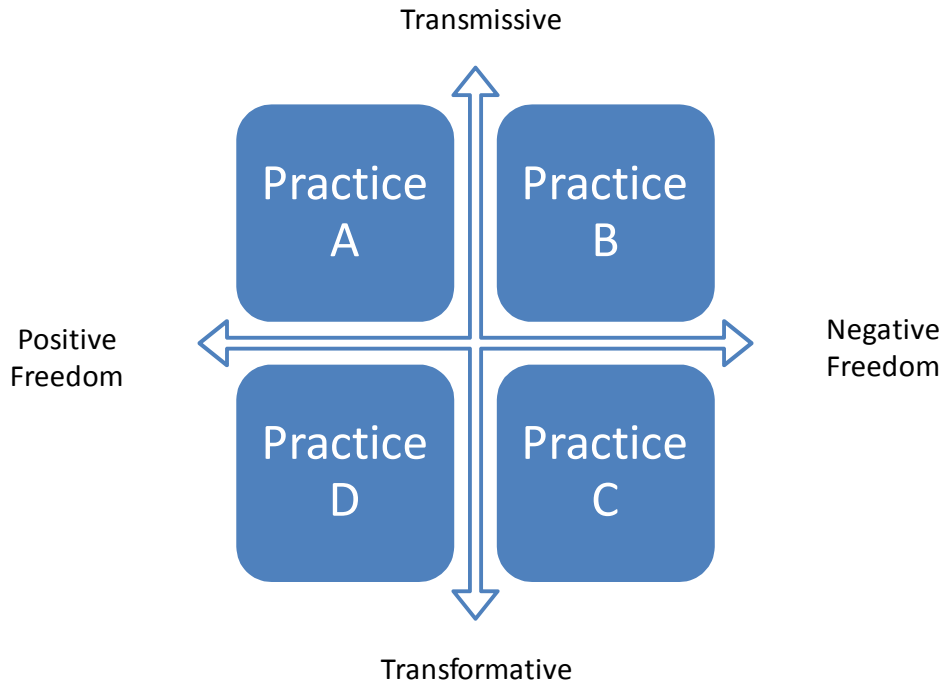
More recently, when considering the institutionalisation of sustainable development into higher education, Gough and Scott (2007) attempted to identify the purpose of higher education in two forms. One is the "real world view" as an instrumental value, and the other the "ivory tower view", as an intrinsic value. However, both of these views are not necessarily in opposition and they are characterised as follows:

- Real world view: “enhanced current and future economic prospects at both the social and personal levels”
- Ivory tower view: “the essence of higher education is seen not as social but as personal. Its value is not instrumental but intrinsic” (Gough & Scott, 2007, p.9)

Furthermore, Gough and Scott (2007) commented that the ivory tower view has become almost extinct in higher education, except in the case of very special universities, and the real world view is the more dominant educational view in contemporary higher education. Although this work was aimed at understanding the purpose of higher education, it might well be possible that similar findings would come out from investigations into education in general.

The above discussion of education perspectives can be analysed clearly in light of Berlin’s (2002) concepts of freedom (negative freedom and positive freedom) which were discussed in Chapter 1. Thus, environmental education practice can be classified according to the following four dimensions (Figure 1.3).

Figure 1.3: Two dimensions of freedom and education practice



In these dimensions, for instance, Practice A (the practice oriented towards positive freedom and transmissive orientation) can be seen to be present in "cramming education" in education systems in Korea, Japan and many other places. That is, in order to achieve high academic scores, teachers and parents force children to memorise knowledge. This kind of education is happening because there is a belief that the good achievement in schools can lead to entry into a high-ranking university, a prestigious company and eventually provide security for life. In such a context, environmental education can be found in the curriculum of teaching about environmental issues. In other words, Practice A orients towards information-based or rule-based environmental education.

Practice B (the practice oriented towards negative freedom and transmissive orientation) can be seen in practices found in indigenous cultures. Their knowledge, skills and wisdom concerning the environment must be transmitted to the next generation for the survival of

the people. However, in the process of learning, there is no authoritative mediation to force their achievement of learning. In fact, for individuals to learn from nature, they need to confront it themselves and devise their own learning strategies.

Regarding Practice C (the practice oriented towards negative freedom and transformative learning), Paulo Freire's (2001) approach provides such an example. Where people are oppressed and suffering in poverty, education practice can really empower people and the rest of society to change their situation better in terms of security, justice and well-being. In environmental education, practices such as empowering and building capacity to enable critical thinking about sustainability and environmental issues could fall into this category.

In Practice D (the practice oriented towards positive freedom and transformative orientation) environmental education practice, academics and experts attempt to formulate the meaning of sustainability and to encourage people to believe in and follow their thinking. An example of this is given in the following story by Huckle and Martin (2001) which describes their ideal sustainable community (Box 1.1).

Box 1.1: Envisaging a sustainable community (Bedford 2045) (Huckle & Martin, 2001, pp.249-253)

It is a Wednesday in September 2045 and Jane Pearson wakes early. The sun is shining down on Bedford and the Pearson family's house in Queens Park. The solar collector on the roof has warmed the water for Jane's shower and by the time she has dressed and gone downstairs, husband Tom is giving Jake his breakfast. Before sitting down with them Jane takes some empty bottles and packaging out to the bins in the back yard. There are different bins for paper, glass, plastic, metals and organic waste and their contents will be collected by the neighbourhood recycling centre that afternoon. Levels of household waste have fallen steeply since Bedford launched its local Agenda 21 in 1996. There are community composting schemes and organic allotments; most bulky packaging is returned to shops for recycling; and more goods are made in ways which allow them to be repaired and upgraded…

By ten o'clock Jane has arrived at work and is expecting a group from Biddenham Upper School. When they arrive she puts them to work repairing bicycles and takes the opportunity to tell them something about the way flywheels can store energy and how they can be incorporated into bicycle design. Cycle repair, solar collector installation and greenhouse construction, are all now part of the GCSE Practical Technology examination which the members of the group will be taking. They include not only teenagers but adults who join school classes as one way of meeting their educational and training needs.

Around three o'clock Jane finishes work and cycles to the community centre. Before collecting Jake she spends half an hour with an aerobics group and then joins Sue, John and Tasleem to work for an hour on the musical play they are writing which will be performed at the Riverside Arts Complex next year. It celebrates fifty years of Bedford's Local Agenda 21 and deals in a light hearted way with changes in the local economy environment, and ways of life. They work on a scene which deals with old and new ways of obtaining water and treating sewage. People now collect and use the water that falls on their roofs and driveways and sewage is treated by a network of reed beds beyond Priory Park. Water charges have fallen and the Water Companies now make much of their money by advising on conservation and pollution prevention….

It is 10.30 by the time Tom and Jane have walked home. There's just time to use the home media centre to check the e-mail, vote in a referendum on the future of the national lottery, and catch up with the financial news on Channel 48. It seems that 3M has made major losses in China and that the future of its European plants may be at risk. A Brazilian company is looking for somewhere to manufacture cancer curing drugs in Britain. Jane wonders whether or not they could be persuaded to come to Bedford.

After reading all the details carefully described by the academics, you might find no space to do think differently about sustainability. .In the other words, this limits learner's freedom

to think critically and creatively towards sustainability.

1.5 Summary of the Chapter

This research is about the operationalisation of theory into practice in environmental education and to this end, the first research question examines how theory informs practice in environmental education. In order to explore this question, this chapter has reviewed what environmental education theories and its practices are and what issues relate to these. For the purposes of the discussion, the environmental education theories were distinguished into two, the absolutist and the pluralist approaches, based on Berlin's (2002) categorisation of freedom. The different perspectives used for discussing theories, namely the: methodology, policy, paradigm, and ontology were analysed in terms of positive and negative freedom. These complex discussions were linked to a consideration of terminology and practice in environmental education. In particular, regarding practice in environmental education, two dimensions (the concept of freedom and educational practice) were explored with examples that demonstrated and emphasised the different dimensions.

Chapter 2

Effectiveness and Environmental Ideologies

This research is about the operationalisation of theory into practice in environmental education. It examines how theory informs practice in environmental education (RQ1) and how theory can improve such practice (RQ2). The previous chapter reviewed the literature of environmental education from theoretical and conceptual perspectives and set out a tentative categorisation of theory and practice. This chapter focuses on the issue of 'improvement' in RQ2, and it explores therefore what 'effectiveness' can mean in environmental education. The first section (2.1) reviews the discussion related to effectiveness in environmental education, which leads to the conceptualisation of the multi-dimensional analytical framework. Then, in relation to the framework, the second part (2.2) explores the implication of environmental views of effectiveness in environmental education.

2.1 Effectiveness of Practice

This research investigates the effectiveness of the operationalisation of theory into practice. This effectiveness can be evaluated in a number of ways. Firstly, probably the most old-fashioned way, is to measure means and ends, and cause and effects. This brings forward one of the important arguments in environmental education, whether education is intrinsic or instrumental, which explored in the previous chapter (Chapter 1). The limitation of measuring means and ends, cause and effect in education is that, it is based on the assumption that education has an instrumental value, thus it missed out the significance of the other educational view which oriented towards the instrumental value.

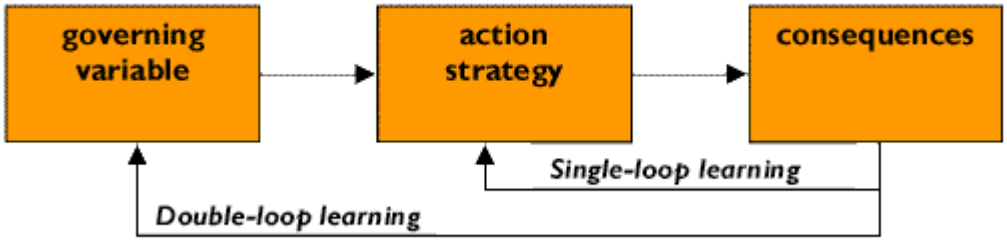
Secondly, Scott and Gough (2003) described the difference between efficiency and effectiveness, by drawing on Argyris and Schön's (1978) two types of operationalisation of theory into practice, which are 'single-loop learning' and 'double-loop learning'. Efficiency is maintained or created by single-loop learning, and it means an instrumental operationalisation that changes strategies of action or theory-in-use in ways that leaves the values of a theory of action unchanged. Effectiveness is, concerned with double-loop learning, this means an operationalisation which results in a change in the espoused theory or values, as well as in its strategies and assumptions. These two concepts, "espoused theory" and "theory-in-use", are also used interchangeably as "governing values" and "action strategies" (Argysis & Schön, 1978). The difference also can be seen in the later work of Argyris (2005):

> "An example of single-loop learning would be to correct an error in an existing strategy without altering the underlying governing variables of that strategy. Double-loop learning would occur if, in order to correct an error, it is necessary to change the underlying assumptions and values that govern the actions in the strategy. A thermostat is a single-loop learner. It is programmed to turn the heat up or down depending upon the temperature. A thermostat would be a double-loop learner if it questioned the existing program that is should measure heat."

To reinforce this definition one can cite an old cartoon, in which children sit in a classroom with their hands tied behind their chairs and the teacher is teaching about "democracy" with something in this context written on the blackboard. The aim of this class is obviously to teach democracy and this is being implemented in a very efficient way. However, the meaning of democracy is inconsistent with the way the teacher is teaching and hence the class is not being delivered in an effective way that is consistent with the message. This

cartoon intended to highlight the inconsistency in a cynical way. Argyris (2005, p.263) drew it more simply in the following figure.

Figure 2.1: Single-loop learning and double-loop learning (Argyris, 2005, p. 263)



Along the same line of thought, Bowers (2002) brought the concept of 'root metaphor' into environmental education and highlighted the embedded assumptions of socially-critical theories in environmental education which he argued were causing ineffective practice. With this conceptual tool, Bowers (2002) particularly examined and espoused the assumption of critical pedagogy in relation to the environmental perspective. Inspired by this concept, this section (1.4) focuses on different types of metaphors in order to examine environmental education theories more widely.

Metaphor, in a broad sense, is "seeing something from the view point of something else" and it can be argued that "all knowledge is metaphoric" (Brown, 1977, p.77). If this is true, then environmental education theories are also derived from the view point of something. Moreover, Schön (1993, p.137) posited that metaphor has more "generative" quality and it is "a certain kind of product – a perspective or frame, a way of looking at things – and a certain kind of process – a process by which new perspectives on the world come into existence" (Schön, 1993, p.137). Thus, metaphor can be regarded as a wider sociological concept, beyond its literal meaning, which may be a useful for understanding environmental

education theories.

According to Brown (1977, pp.77-78), whom Bowers drew upon, in sociology there are different kinds of metaphors, namely: 'illustrative metaphor', 'metaphor as model' and 'root metaphor'. An illustrative metaphor can be described as a single story, which underlines a fundamental point. However, it does not lend itself to elaboration, so as to able to compare it with model and root metaphors. Metaphoric models can be viewed as ideologies or perspective which describe the content of the world, whereas a root metaphor attempts to describe the world itself, in the other words, root metaphor is a way of understanding one's own position in relation to 'context' and 'change'.

The interest here is not in the concept of the metaphors themselves, but the fact that thinking about metaphor reveals that there are different levels of variables bearing on practice. When applying this fact to the concept of double-loop learning (Figure 1.4), effective practice occurs when these multi-layered governing variables are learned and the actions are adjusted accordingly. In Brown's categorisation (1977), these variables are ideological at one level and contextual at the deeper level. Thus, this research seeks to explore the ideologies of environmental education at the first level, and the view of context and change at the deeper level, in the practice of environmental education theories. The next section explores environmental ideologies in environmental education as the first dimension of variables.

2.2 Environmental Ideologies

Broadly speaking, 'environmental' can be referred to as a consideration for the protection of

the environment. In the West and westernised countries[2], almost everybody is concerned about environmental issues, to a greater or lesser extent (Pepper, 2000). However, there are various standpoints on environmental views and in order to clarify these, a number of authors have attempted to conceptualise the different categories of environmental views.

One influential conceptualisation of environmental views was developed by Naess, a Norwegian philosopher. He categorised environmentalism into, 'the shallow ecology movement' and 'the deep ecology movement'. According to Naess (1973), whilst 'the shallow ecology movement' only concerns pollution and resource depletion, 'the deep ecology movement' is in principle characterised as a relational, total-field image of man and the environment. Moreover, under this perspective the following kinds of issues are considered to be of paramount importance: biospherical egalitarianism; principles of diversity and symbiosis; anti-class posture; fight against pollution and resourse depletion; complexity, not complication; local autonomy and decentralisation (Naess, 1973). In his work in 1985 which is a famous monograph called 'Ecosophy T'[3], Naess (2001, originally published in 1985) clarified the distinction more clearly, as shown in the following table:

[2] Westernised countries may include industrialised countries in non-West geographical area.

[3] 'Ecosophy T' is Naess's ultimate philosophy distinct from deep ecology. 'T' serves as sort of his copyright and it does not seem to have a deep meaning.

Table 2.1: Shallow ecology and deep ecology (Naess, 2001, p.151- Figure 1)

Shallow Ecology	Deep Ecology
Natural diversity is valuable as a resource for us. It is nonsense to talk about value except as value for mankind. Plant species should be saved because of their value as generic reserves for human agriculture and medicine. Third World population growth threatens ecological equilibrium. "Resource" means resource for humans. People will not tolerate a broad decrease in their standard of living. Nature is cruel and necessarily so.	Natural diversity has its own (intrinsic) value. Equating value with value for humans reveals a racial prejudice. Plant species should be saved because of their intrinsic value. Decrease of pollution has priority over economic growth. World population at the present level threatens ecosystems, but the population and behavior of industrial states more than that of any others. Human population is today excessive. "Resource" means resource for living beings. People should not tolerate a broad decrease in the quality of life but in the standard of living in overdeveloped countries. Man is cruel but not necessarily so.

The concept of deep ecology was established by Arne Naess and developed further by a number of academics, particularly Bill Devall and George Sessions (1985). The overarching principle of deep ecology is the: intrinsic value of nature; the non- or anti-anthropocentric posture; and biospherical egalitarianism. However, deep ecology is often challenged for having logically-deficient arguments. For instance, the common questions for deep ecology include: who decides 'nature has intrinsic value'? – it is humans in the end (e.g. Pepper, 1996, pp.50-51); how the non- or anti- anthropocentric perspective is possible, since we cannot think as beyond being human; and who do you save first in terms of biospherical egalitarianism.

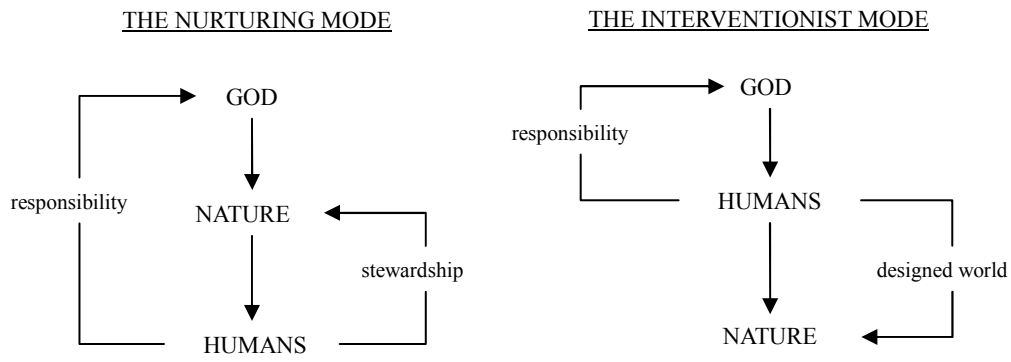
O'Riordan (1981b, p.7) also criticised the philosophical incompatibility of deep ecology with daily life, and he proposed more detailed categories of environmental ideologies, including a wider range of possible opinions (O'Riordan, 1981a, 1981b, 1989). His basic

distinction within environmental ideologies is between ‘ecocentrism’ and ‘technocentrism’, described as follows:

- Ecocentrism: “[it] preaches the virtues of reverence, humility, responsibility, and care; it argues for low impact technology (but it is not anti technological); it decries bigness and impersonality in all forms (but especially in the city); and demands a code of behaviour that seeks permanence and stability based upon ecological principles of diversity and homeostasis.”
- Technocentrism: “[it] is almost arrogant in its assumption that man is supremely able to understand and control events to suit his purposes. This assurance extends even to the application of theories and models to manipulate and predict changes in value systems and behaviour, while the exercise of science to ‘manage’ nature has been assumed for some time.” (O’Riordan, 1981a, p.1)

The difference between Naess’ and O’Riordan’s classifications is, while Naess described them by using an evaluative categorisation of ‘deep’ and ‘shallow’ from a deep ecological viewpoint, O’Riordan analysed the rationales behind these two extreme positions by way of reflecting on the Western view of the relationship between humans and nature, as shown in the following figure (Figure 2.2):

Figure 2.2: Relationship to nature. (O'Riordan 1989 p.82 - Figure 4.1)



According to O'Riordan (1989 p.82), ecocentrism derives from 'the nurturing mode', described as humans' stewardship towards nature for the sake of responsibility to God. On the other hand, technocentrism comes from 'the interventionist mode', which concentrates on the human design of the world—also, for the sake of responsibility towards God. On the basis of these two viewpoints, O'Riordan (1989) proposed a fourfold classification.

Table 2.2: European perspectives on environmental politics and resource management: contemporary trends in environmentalism. (O'Riordan, 1989, p.85 – Table 4.1, italic in original)

Ecocentrism		Technocentrism	
Gaianism	*Communalism*	*Accommodation*	*Intervention*
faith in the rights of nature and of the essential need for co-evolution of human and natural ethics	faith in the co-operative capabilities of societies to establish self-reliant communities based on renewable resource use and appropriate technologies	faith in the adaptability of institutions and approaches to assessment and evaluation to accommodate to environmental demands	faith in the application of science, market forces, and managerial ingenuity
'Green supporters; radical philosophers	Radical socialists; committed youth; radical-liberal politicians; Intellectual environments	Middle-ranking executives; environmental scientists; white-collar trade unions; liberal-socialist politicians	Business and finance managers; skilled workers; self-employed; right-wing politicians; career-focused youth
0.1-3% of various opinion surveys	5-10% of various opinion surveys	55-70% of various opinion surveys	10-35% of various opinion surveys
Demand for redistribution of power towards a decentralised, federated economy with more emphasis on informal economic and social transactions and the pursuit of participatory justice		Belief in the retention of the status quo in the existing structure of political power, but a demand for more responsiveness and accountability in political, regulatory, planning, and educational institutions	

In his later work (1999), those four perspectives are named from the left as 'Deep environmentalist', 'Soft technologist', 'Accommodators', 'Cornucopians' (Table 2.3) (See also similar examples in O'Riordan, 1981b; O'Riordan & Turner, 1983). O'Riordan's categorisation of environmentalism has been widely used (e.g. Baker, 1997 in the field of politics). More importantly, it has been very influential in developing the discussion on environmental education theories (Fien, 1993a; Huckle & Sterling, 1996; Gough et al., 2000).

Table 2.3: Variation on the basic themes (O'Riordan, 1999, p.153 – Table 1)

<table>
<tr><td colspan="2">Ecocentrists</td><td colspan="2">Technocentrists</td></tr>
<tr><td>Deep Environmentalists</td><td>Soft technologists</td><td>Accommodators</td><td>Cornucopians</td></tr>
<tr><td colspan="2">Lack faith in modern, large-scale technology and its need for elitist expertise, central authority, and inherently undemocratic institutions

Believe that materialism for its own sake is wrong and that economic growth can be geared to provide for the basic needs of those below subsistence levels.</td><td rowspan="2">Believe that economic growth and resource exploitation can continue indefinitely given: (a) a suitable price structure (possibly involving taxes, fees, and so forth); (b) the legal right to a minimum level of environmental quality; and (c) compensation for those who experience adverse environmental or social consequences

Accept new project appraisal techniques and decision review arrangements to allow for wider discussion and a genuine search for consensus among affected parties

Support effective environmental management agencies at the national and local level</td><td rowspan="2">Believe that humans can always find a way out of difficulties, either through politics, science or technology

Believe that scientific and technological expertise is essential on matters of economic growth and public health and safety

Accept growth as the legitimate goal of project appraisal and policy formulation

Are suspicious of attempts to widen participation in project appraisal and policy review

Believe that any impediments can be overcome given the will, ingenuity and sufficient resources (which arise from wealth)</td></tr>
<tr><td>Recognize the intrinsic importance of nature to being fully human

Believe that ecological (and other natural) laws determine morality

Accept the right of endangered species of unique landscapes to remain unmolested</td><td>Emphasize small (and hence community identity) in settlement, work and leisure

Attempt to integrate work and leisure through a process of personal and communal improvement

Stress participation in community affairs and the rights of minorities</td></tr>
</table>

After the O'Riordan's classification (1981a, 1981b, 1989), the focus of the issue of environmentalism shifted to a different direction. In particular, Merchant (1992) developed a more ethics oriented classification and Pepper (1996) focused on more political philosophies on environmentalism.

The characteristics of Merchant's (1992, pp.63-80) classification are focused on egalitarianism from an eco-feminist viewpoint according to three categories, namely: egocentric, homocentric and ecocentric as follows:

- Ecocentric: grounded in the cosmos. The whole environment is assigned intrinsic value. The overarching goal is maintenance of the balance of nature and retention of the unity, stability, diversity, and harmony of the ecosystem.
- Homocentric: it underlies the social interest model of politics and the approach of environmental regulatory agencies that protect human health. Based on the utilitarian ethics of Jeremy Bentham and John Stuart Mill, a society ought to act in such a way as to insure the greatest good for the greatest number of people.
- Egocentric: it is based on an individual focused on individual good. In its applied form, it involves the claim that what is good for the individual will benefit society.

Table 2.4: Ethical categories on environmentalism (Merchant, 1992, pp.64-5 – Table 3.1)

Grounds for Environmental Ethics					
Self: Egocentric (Anthropocentric)		Society: Homocentric		Cosmos: Ecocentric	
Self-Interest	Religious	Utilitarian	Religious	Eco-Scientific	Eco-Religious
Thomas Hobbes John Locke Adam Smith Thomas Malthus Garrett Hardin	Judeo-Christian ethic Arminian[4] "heresy"	J.S. Mill Jeremy Bentham Gifford Pinchot Peter Singer Barry Commoner Murray Bookchin Social eco-feminists Left Green	John Ray William Derham René Dubos Robin Attfield	Aldo Leopold Rachel Carson Deep ecologists Restoration ecologists Biological control Sustainable agriculture	American Indian Buddhism Spiritual Feminists Spiritual Greens Process philosophers
Grounds for Obligation					
Maximization of individual self interest: what is good for each individual will benefit society as a whole. Mutual coercion mutually agreed upon	Authority of God Genesis I Protestant ethic Individual salvation	Greatest good for the greatest number of people Social justice Duty to other humans	Stewardship by humans as God's care-takers Golden Rule Genesis II	Rational, scientific belief system based on laws of ecology Unity, stability, diversity, harmony of ecosystem Balance of nature or chaotic systems approach	Faith that all living and non-living things have value Duty to whole environment Human and cosmic survival

As can be seen Merchant's unique categorisation of "homocentric" ethics lies somewhere in between anthropocentric and ecocentric ethics. However, Pepper (1996, p. 40) pointed out that the utilitarian view of homocentric ethics is consonant with communalism in O'Riordan's category and also he was dubious about the ground of ecocentrism, which Merchant put as "cosmos". In fact, Leopold's land ethics (which appeared in the "cosmos"

[4] Arminian is a school of thought within Protestant Christianity based on the theological ideas of the Dutch Reformed theologian Jacobus Arminius.

row in Table 2.4) are about the enlargement of boundaries from the self to biotic communities, that is to say, Leopold's land ethics is based on the self and extend to others, not based on cosmos. More specifically, Pepper (1996, p.51) as mentioned "In Leopold's (1949) claim that something is right when it preserves the *integrity, beauty* and *stability* of the biotic community and wrong when it does otherwise, the words emphasised refer to essentially human-based qualities" (italic in original)

Based on the critique of O'Riordan's and Merchant's classifications of environmentalism, Pepper (1996) distinguished 'radical' environmentalism from 'reformist' environmentalism, in terms of political ideology. In his classification, deep ecology is completely ignored.

Table 2.5: Political philosophies and environmentalism (Pepper, 1996, pp.42-3 – Table 1.9)

Traditional Conservatives (radical)	Are limits to growth, and enlightened private ownership is the best way to protect nature and environment from over-exploitation. Protect traditional landscapes, buildings, as part of our heritage. Anti-industrialism: human societies should model themselves on natural ecosystems, e.g. should be stable, and change slowly and organically. Need for diversity, but a hierarchical structure: bound together by commonly held beliefs. Everyone to be content with their position (niche) in society. The family (perhaps extended) is the most important social unit. Admire tribal societies. Romantic: yearn for the past.
Market Liberals (reformist)	The free market, plus science and technology, will solve resource shortages and pollution problems. If resources get scarce, people will supply substitutes – if there's a market for them. Don't believe in 'overpopulation'; people are a resource. Capitalism can accommodate and thrive in protecting the environment. Consumer pressure for environment-friendly products will play a big part, capital will respond to this market.
Welfare Liberals (reformist)	Market economy, with private ownership, but managed. Reform laws, planning and taxation for environmental protection. Enlightened self-interest, tailored to the communal good, will solve the problems. Consumer pressure for environment-friendly products will play a big part. Pressure group campaigns in a pluralist, parliamentary democracy will lead to appropriate legislation.
Democratic Socialist (reformist)	Decentralised socialism; local democracy, town-hall socialism. Mixed economy and parliamentary democracy – with strict controls on capitalism. Emphasises the role of labour and trade unions. A big role for the state (especially locally). Mixture of private and common ownership of resources. Emphasis on improving the urban environment. Production for social need. Big co-operatives sector. State subsidises environment protection (e.g. public transport).
Revolutionary Socialist (radical)	Environment ills are specific to capitalism, so capitalism must be abolished: requiring some revolutionary change, perhaps brought on by environmental crises. Rejects the state ultimately, but perhaps needed in the transition to a communal (commune-ist) society. Class conflict vital in social change to a green and socially just world – reject parliamentary reform. Poverty, social injustice, squalid urban environments, all seen as part of the environmental crises. Similar visions of future to anarchists, but emphasise collective political action, and the state initially.
'Radical' = wanting to go back to the roots of society and change it fundamentally in some ways, and quite rapidly. 'Reformist' = The present economic system is accepted: but it must be revised – in the direction of either less or more interference in and management of the economy – gradually and through parliamentary democracy.	

Later, Pepper (2000) categorised the distinctions in environmentalism in terms of the different views on capitalism. 'Traditional conservatives' and 'Revolutionary socialists' have similarities in their radical and anti-capitalist perspectives, however, they are quite different in terms of recognition of the past. Traditional conservatives tend to be more romantic; whereas revolutionary socialists are keen on a new future. In terms of pro-capitalist and reformist views: 'Market Liberals', 'Welfare Liberals' and 'Democratic Socialist' hold similar points of view. Among these, it is almost impossible to consider the market liberals as 'environmental' in the environmental field, however, welfare liberals and democratic socialists are well known as 'red-green'[5]

To summarise the categorisation of environmentalism introduced so far, there are different foci for classifying the values. Naess's categorisation was concerned with deep ecology; O'Riordan focused on the relationship between nature and humans; Merchant's interest was in ethics; and lastly Pepper's key concern was political ideology, especially capitalism. The following table (Table 2.6) succinctly summarises these different standpoints. Each ideology in a column in the table is tentatively corresponding to each other, though it might not be perfectly matched.

[5] The word 'red-green' indicates the combination of the value of development and the environment compared to 'dark-green' as value deeply concerns the environment.

Table 2.6: Summary of categorisation of environmentalism

Naess (1985) Focus: Deep ecology	Deep Ecology		Shallow Ecology	
O'Riordan (1989, 1999) Focus: Relationship between nature and humans	Ecocentrism		Technocentrism	
	Deep Environmentalists	Soft Technologists	Accommodators	Cornucopians
Merchant (1992) Focus: Ethics	Ecocentrism	Homocentrism	Egocentrism	
Pepper (1996) Focus: political ideology	Radical		Reformist	
	• Traditional Conservatism • Revolutionary Socialist		• Market Liberals • Welfare Liberals • Democratic Socialist	

2.3 Beyond the Ideologies

The primary purpose in reviewing the environmental ideologies has been to explore the range of viewpoints regarding the environment. However, the main environmental theorists have come from Western countries and can be argued that the categorisations have been conceptualised in the context of Western societies. In fact, O'Riordan (1989) clearly stated that his conceptualisation was based on the Western and European contexts. To explore why those ideologies have been developed in Western countries and there is little significant literature of categorisation of environmental views in the other countries, it might be useful to review the concept of 'ideology'.

The term ideology is one of the most equivocal, elusive and ambiguous concepts in social science (Larrain, 1979; Eagleton, 1991; McLellan, 1995; B. Thompson, 1984, 1990) and presents a conceptual morass (Gerring, 2001). However, many writers have point out that the origin of the term ideology is closely connected to the: social, political, technical and intellectual upheavals that occurred during the Industrial Revolution and the Enlightenment.

In particular, the term ideology was developed as a displacement for irrational traditional thought, as a consequence of the invention of mass communication, the rise of nation-state and the emergence of democracy (Gerring, 2001).

The term 'ideology' was first presented by de Tracy in 1796 as one of the sciences; the '-ology' suffix, meaning the science or study of some phenomenon, such as sociology or psychology (Eagleton, 1991). However, soon after the recognition of new science, the meaning of term changed from the science of ideas to the sets of ideas themselves (such as a certain philosophical thought or a religious thought). This especially assisted by Napoleon, who being aware of de Tracy's definition attacked many kinds of philosophy and theory using the word idéologues (in the plural) (B. Thompson, 1984, 1990).

Some writers (e.g. Plamenatz, 1970; Boudon, 1989; B. Thompson, 1990; Eagleton, 1991; McLellan, 1995) noted that there is a positive/neutral meaning and a negative/pejorative meaning to the term ideology. In the beginning de Tracy defined the term positively as a science of ideas, in opposition to the irrational ideas of the past. However, later Napoleon and Marx used the term negatively; especially Marx who spoke of ideology as 'false consciousness'. By this, he meant a set of false beliefs shared by a certain group or community, such as in 'bourgeois ideology' (Plamenatz, 1970). After Marx, the concept of ideology was developed further by Lenin and Lukács (B. Thompson, 1990). Lenin elaborated 'socialist ideology' and Lukács emphasized 'proletarian ideology' and they both used the term in ways that expressed and promoted their respective interests. Later, Mannheim (1972) was the first to attempt to introduce a positive conception of ideology by associating the concept of 'utopia'. According to Mannheim, the term ideology and utopia are both referred to system of thoughts or worldview; however, the former associates with the critical analysis of worldview in the current state and the past, the latter orients to

system of ideas in the future.

However the negative meaning still remained in the term because of the influential philosopher/sociologist/economist, Karl Marx. Amongst socially-critical theorists/critical pedagogy theorists there has been a continuous concurrence with this negative view of ideology. Moreover, accepting this interpretation many of the theorists have used the term 'hegemony'. For instance, the critical pedagogy theorists have often drawn on Gramsci's definition which states that hegemony is "a process within civil society whereby a fundamental class exercises control through its moral and intellectual leadership over allied classes" (Giroux, 1981, p.23). Fien (1993a), in the environmental education field, has also drawn on the term hegemony using the definition of Williams (1977) and defined hegemony as the prevailing or dominant ideology or cultural domination over society as it refers to the process of intellectual control of the most powerful groups within a society. He has used this negative meaning to criticise the dominant social ideology (technocentrism) that causes ecological crisis.

To summarise, the notion of true/false consciousness, was inherited from Marx and was consistent with the dichotomy of Cartesian thinking in Western countries that evolved alongside the Industrial Revolution and the Western Enlightenment. In addition, the term ideology was conceived and developed to displace the 'irrational' traditional thought of the pre-enlightenment era. Thus, the concept of ideology, given its origins in Western civilisation, may not be useful as a blueprint for investigating non-Western contexts with regards to environmental education. This discussion is resumed in the next chapter where the various perspectives including non-Western context is addressed.

2.4 Summary of the Chapter

This chapter has focused on RQ2 (how theory can improve practice in environmental education) and explored improvement and effectiveness in the context of environmental education. Firstly, it considered the meaning of the concept effectiveness, which led to a discussion of as the concept of double-loop learning and root metaphor. In these, the multiple layers of governing variables are implicated in effective practice, thus to understand those variables is significant. In order to explore such variables, the second section reviewed the range of environmental views from the technocentric to ecocentric perspectives. As has been shown, many authors have discussed environmental perspectives from different directions, e.g. deep ecology (Naess, 1985), the relationship between nature and humans (O'Riordan, 1989), ethics and spirituality (Merchant, 1992) and politics and political ideology (Pepper, 1996). In addition, as a result of reviewing the environmental ideologies which have been mostly developed in Western countries, it questioned the concept of ideology itself is necessarily associated with Western contexts.

Chapter 3

Context and Change in Environmental Education

This chapter contains a review of the possible range of contexts in relation to environmental education; such as the discussion across geographical, sociological, cultural and anthropological spheres. The first section (3.1) explores the comparison of civilisations by discussing the work of Samuel Huntington. The second (3.2) reviews sociological perspectives, in particular it features the important dimensions of mechanism and organism. The third section (3.3) explores different rationalities of changes by introducing cultural theory (Thompson, Ellis & Wildavsky, 1990). The fourth section (3.4) examines the anthropological aspect. The last section (3.5) presents a summary of the discussion and the scope of this research.

3.1 Comparison of Civilisations: West, East, North and South

If asked what is at the root of a particular country, it is very difficult to answer. One could answer from various aspects: historical, geographical, cultural, religious, political, ideological, or sub-cultural perspective. Thus it is difficult to conceptualise the distinctiveness of a country.

However, Samuel Huntington (1993, 1998), in his influential book "The Clash of Civilizations", argued that the civilisation, as people's cultural and religious identity, is the primary root of distinguishing themselves, thus it is the root of conflicts between nations in the case of his argument. According to Huntington (1993), a civilisation is the highest cultural grouping of people, which is differentiated by different elements of subjective self-identification of people such as languages, history, religion, customs, and institutions.

On the basis of this definition, Huntington (1993) suggested the world can be divided by eight major civilisations: Western, Confucian, Japanese, Islamic, Hindu, Slavic-Orthodox, Latin America, and African civilisations.

His crucial point in his idea of the clash of the civilisation is that cultural characteristics and differences are less mutable and hence less easily resolved than those political and economic ones which we used to face in the period of the Cold war. Huntington (1993, p.27) writes:

> "In class and ideological conflicts, the key question was 'Which side are you on?' and people could and did choose sides and change sides. In conflicts between civilisations, the question is 'What are you?' That is a given that cannot be changed."

Thus, he analysed potential conflicts between them, such as: Western civilisation versus Islamic civilisation; Western civilisation versus East Asian Sinic civilisation and many other conflicts. The key interest here is not his theory of civilisation clashes, but his categorization of civilisation according to religious and cultural divisions.

In his critique of Huntington's hypothesis, Amartya Sen (2006) argued that the world can be classified according to many other partitions, including: nationalities, locations, classes, occupations, social status, languages and politics, and therefore other such important distinction should not be ignored. Thus, according to Sen's viewpoint, answers to the question "what are you?", which Huntington assumed cannot be changed, are in fact changeable. In dividing and classifying the world into: the Islamic world, the Western world, the Hindu world, the Buddhist world and so on, the divisive power of classificatory priority

is implicitly used to place people firmly inside a unique set of rigid boxes (Sen, 2006). Edward Said (1978, 2001) also agreed with this point of view and criticised Huntington's theory as 'imagined geographies' which causes 'the clash of ignorance'.

Huntington's categorisation has come in for criticism, because if it is adopted it potentially exacerbates conflict in the world by its polarisation. However, the question here is whether to wake up the baby, that is, whether understanding such differences in civilisations—even for a tentative classification of the world—helps to understand context in the implementation of environmental education. This area has not been fully explored in relation to environmental and sustainability issues, with the exception that O'Riordan (1989) developed his definition of environmentalism using the relationship between God, nature and human based on Christianity (See Chapter 2). For example, how can Hindu culture or Confucius philosophy or Islam respond to environmental concerns and issues?

In addition, compared to the internationality of environmental education policy initiatives, there are few studies dealing with the associated cultural comparisons. In this sense, the point of saying that education for sustainable development is "monopoly" (Jickling, 2005) and "tyranny" (Champman, 2006) seems valid. By extension, internationalisation of environmental education might be equivalent to westernisation of it, in that the notion of Said's orientalism might be useful. Said (1978, p.3) stated:

> Orientalism can be analysed as the corporate institution for dealing with the Orient—dealing with it by making statements about it, authorizing views of it, describing it, settling it, ruling over it: in short, Orientalism as a Western style for dominating, restructuring, and having authority over the Orient.

This can be applied not only to the East but also the other non-Western countries. Anyway, there is no doubt that the West has a power in relation to other civilisations. In terms of the environment, it is understandable that people from developing countries sometimes mention environmental movements and campaigns as being Western propaganda toward developing countries. There is a need to understand the different cultural ways of thinking.

3.2 Anthropological Exploration: Industrialised, agricultural and indigenous

Western societies' associations with Enlightenment, industrialisation, and modernisation are often targets for criticism in the discussions on environmental concerns. Therefore many writers have sought insights in non-western cultures and values. For example, Brody (2002), an anthropologist and documentary filmmaker, observed indigenous hunter-gatherer cultures and revealed the prevailing image of western farming culture. By observing indigenous life in the Arctic, he demonstrated that the story of Genesis and the exile from Eden is associated with the births of "farmers", who presume rights to: move into wild areas, tame, exploit, populate, dominate and control lands, where once hunter-gatherers had inhabited. These actions became rationalised in names of: progress, Christianity, capitalism, and thus spread throughout the world.

In addition to the examples of the indigenous peoples of hundreds years ago, the Edo period (1603 – 1867)[6] in medieval Japan has received significant attention from some writers (Ishikawa, 2000; Diamond 2005), because of its sustainable environmental management. The Edo period lasted 265 years under the domination of the Tokugawa family. The name of this era came from Edo city (currently Tokyo), which was the centre of the feudal

[6] See Appendix for the more detail of Japanese historical period.

government. At the time, Edo was the largest city in the world and the population was estimated at around 1.25 million people, according to the first national census conducted around 1720 (Japan for Sustainability, http://www.japanfs.org/en/search/?tag=Sustainability%20in%20Edo). Tokugawa rulers closed their country to any international trade, apart from one very small island, which was only open to a trade with specified foreigners, such as, a few Dutch and Korean merchants. Because many resources could not be imported from abroad, the people during Edo period had a very few, and that is why they treated everything as a precious commodity. Reusing and recycling was established and flourished as a business, such as collecting night soil which was composted for farming. Diamond (2005) also noted the strict regulation of wood consumption and the skill of silviculture that was developed by the Japanese government at the time. However, similar to what happened in indigenous cultures, Japan was forced to open the trade to western countries, and gradually become westernised and industrialised. Oe Kenzaburo (1994), a Nobel Prize winner in literature, expressed the following concern:

> "My observation is that after one hundred and twenty years of modernisation since the opening of the country, present-day Japan is split between two opposite poles of ambiguity… The modernisation of Japan has been orientated toward learning from and imitating the West. Yet Japan is situated in Asia and has firmly maintained its traditional culture. The ambiguous orientation of Japan drove the country into the position of an invader in Asia. On the other hand, the culture of modern Japan, which implied being thoroughly open to the West or at least that impeded understanding by the West. What was more, Japan was driven into isolation from other Asian countries, not only politically, but also socially and culturally." (Nobel prize lecture, http://nobelprize.org/nobel_prizes/literature/laureates/1994/oe-lecture.html)

Not just Japan, but many other countries have similar tensions between traditional indigenousness and industrialisation. In the environmental education field, Bowers (2000, 2001) argued that what has continuously contributed to the ecological crisis, is the high-status knowledge demonstrated by the economically specific assumptions of capitalism, which has been continually developing since the Industrial Revolution. This knowledge has reproduced the assumptions surrounding capitalism, for example, anthropocentrism, individualism and technocentrism in the West. Orr (1994) also noted that the environmental crisis has not been caused by ignorant people, but rather, it has mostly been the responsibility of highly educated people with BAs, BScs, MBAs and PhDs. Their knowledge orients them towards a natural world which "emphasizes theories, not values; abstraction rather than consciousness; neat answers instead of questions; and technical efficiency over conscience" (Orr, 1994, p.8).

Both Bowers and Orr claimed that this knowledge has led to the current perceived ecological crisis and Bowers (2000, 2001) further claimed his belief in a root metaphor that takes the form of an ecologically sustainable culture that has not been influenced by the Industrial Revolution. These cultures often exhibit types of low-status knowledge, which include "narratives, highly contextualised face-to-face interactions, mentoring, and elder relationships" (Bowers, 2000, p.12).

However, whilst trying to conceptualise traditional ecological knowledge which echoed with the discussion above, Reid, Teamey and Dillon (2004) were criticised in a way that traditional ecological knowledge based approaches to education is a neo-Romantic paradigm to be championed in environmental education. However, traditional ecological knowledge or low-status knowledge does not need to be championed in environmental education, but does need to be considered as one of the contexts that might be useful for

environmental education because it includes insights into sustainability issues.

3.3 Sociological Exploration: Mechanism and organism

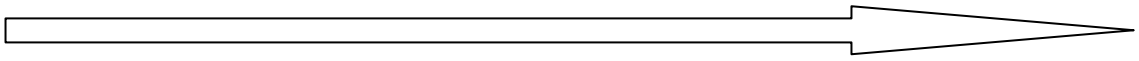
In sociology, mechanism and organism are seen as basic root metaphors. Simply put, mechanism sees nature and/or society as a machine and organism sees nature and/or society as organic entities. Organism was an original form of metaphor developing from nature, whereas mechanism became dominant later. The birth of mechanical thinking can be traced back to the 16th and 17th centuries with the works of Galileo, Newton, and Descartes (Brown, 1977). In particular, Descartes developed the dualism of body and soul: the body works like a machine according to the law of physics, whereas the soul does not. Such mechanical thinking was widespread amongst philosophers and sociologist in the 19th and 20th centuries. For example, Marx analysed the law of society as a natural law, and also developed true/false consciousness or ideological critique, in order to displace the 'irrational' traditional thought of those times (See Plamenatz, 1970; Boudon, 1989; Eagleton, 1991; McLellan, 1995).

These mechanistic views, which embrace dialectical thinking, are the basis of thought in model metaphors in that they attempted to change paradigm A to paradigm B as, explored in the earlier chapter (Chapter 2). More specifically, the mechanistic root metaphor can be associated with the absolutist approach towards environmental education theories, which encourage social change from a dominant paradigm to an ideal paradigm. Socially-critical education is one such case and that is why Bowers (1991, 2001, 2002) criticised their mechanical root metaphor.

Sterling (2003) developed the discussion of paradigm further by arguing that Kuhn's view

of paradigm is based on the discontinuing and contesting paradigm and lacks the co-evolutionary and transcendent view of paradigm put forward by writers such as Wilber (1996). That is to say, Sterling (2003) favoured the co-evolutionary view of paradigm and posited three different kinds of paradigm change as seen in the following figure.

Figure 3.1: "Mapping fundamental paradigmatic positions: moments, movements and metaphor" (Sterling, 2003, p.91 – Table A.1)



Moments and movements		
First order change	**Second order change**	**Third order change**
Modernism	Postmodernism (decon.)	Revisionary postmodernism
Foundationalism	Pragmatism/critical theory	Participativism
Realism	Idealism	Co-evolutionism
Materialism/dualism	Dualism	Panexperientialism
Universalism	Relativism	Relationalism
Objectivism	Subjectivism	Critical subjectivity
Positivism	Constructivism	Participatory knowing
Environmentalism	Ecologism	Whole systems thinking
Hard systems	Soft systems	Whole systems thinking
Root metaphors		
Mechanism	**Text**	**Living systems/organicism**
(Organicism)	Mechanism	(Text)
	(Organicism)	(Mechanism)

(Note: The words in root metaphors section are written in three different ways: bold, ordinary and bracket. This is to indicate that the bold one represents stronger; ordinary types are less strong than bold ones; and words in brackets are weaker.)

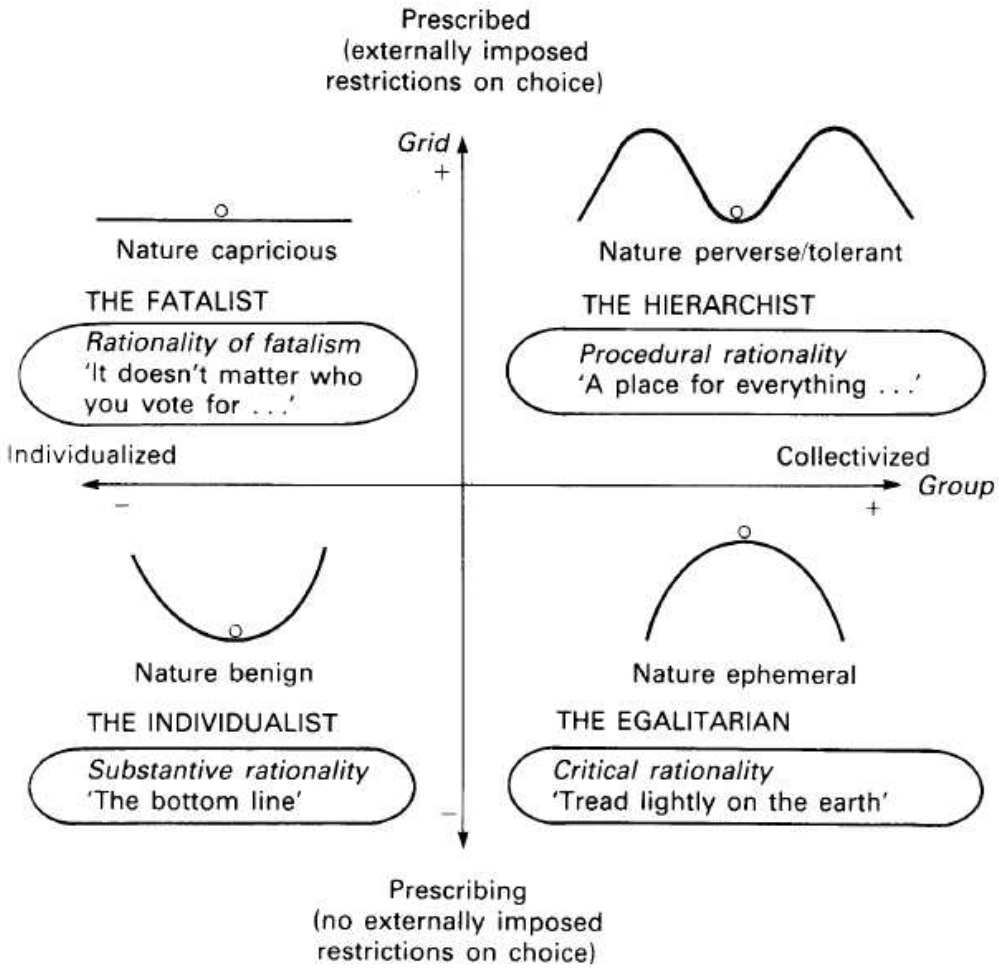
As the tables illustrates, Sterling (2003) described three kinds of paradigm shifts acknowledging root metaphors, as compared with socially-critical environmental education, which did not consider root metaphors at all. His main thesis was aimed at changing paradigms by whole system thinking. However, he did not explain the change processes for

root metaphors: how do we change root metaphors? Do root metaphors change according to the paradigm that is changed? Is it possible to change a root metaphor mechanically and linearly, e.g. root metaphor A to B and B to C?

3.4 Rationality for Change: Introduction to cultural theory

In recent years, many academics in environmental education have claimed that there is a need to consider pluralism, in relation to environmental education (Jickling & Spork, 1998; Stables & Scott, 2002; Gough, 2002; Scott & Gough, 2003). Gough (2002), and Scott & Gough (2003) drew on the work of Thompson, who further developed cultural theory in relation to environmental management. Cultural theory (James & Thompson, 1989; Thompson, Ellis & Wildavsky, 1990; Thompson, 1990; Schwarz & Thompson, 1990) describes four forms of rationalities concerning the relationship between nature and human beings, which are as follows:

Figure 3.2: The myths of nature mapped onto the rationalities (Schwarz & Thompson, 1990, p.9 – Figure 1.3)



A particular individual or group has a different rationality, depending on the situation or position they in and it is argued that this is a plausible framework to explain their behaviour under uncertainty. The hierarchist, individualist and egalitarian rationalities are active; whereas that of the fatalist is passive. For example, the active rationalities are perceived in stable or developed regions where people's values include: "I want to win" (the individualist rationalities) or "I want to be fair" (the egalitarian rationalities) or "I want to be efficient at what I am doing" (the hierarchist rationalities). However, the passive rationality of the fatalist is recognised in more the vulnerable parts of the world that face serious problems and where people believe that "Only God knows our future".

In relation to their myths of nature, nature is the most generous in the view of the individualists. Even if they behave individualistically; an invisible hand will manage to achieve the best outcome. On the other hand, nature is the harshest to the fatalists since they cannot learn from or manage nature. The egalitarians views nature is ephemeral and tread lightly on the earth. By contrast, the hierarchists are tolerant toward nature and consider that it needs strong social controls to make sure that the natural resources is never deplenished or damaged (this illustrated in the diagrams in the figure in a way that the ball never crosses the rim) (Schwarz & Thompson, 1990).

Drawing on the cultural theory, Gough (2002) and Scott & Gough (2003) suggested taking account of plural rationalities. These rationalities have been applied to environmental education as follows (Gough, 2002, p.279):

- Hierarchical: “The natural environment is a complex rule-based system”, “Institutions should regulate behaviour in relation to the environment by making social rules” and “Behaviour which follows these rules is pro-environmental”;
- Individualistic: “The natural environment provides the resource-base for a struggle for survival”, “Markets should regulate behaviour in relation to the environment” and “Behaviour which maximises net benefits is pro-environmental”;
- Egalitarian: “The natural environment is a delicate, self-sustaining web”, “Considerations of equity and justice should regulate behaviour in relation to the environment” and “Behaviour which promotes equity and justice for all living things is pro-environmental”;
- Fatalistic: “The natural environment is capricious” and “Trying to be pro-environmental is a waste of time: what will be will be” (Gough, 2002, p.279).

The roots of environmental education can be explained by these rationalities. However, amongst these, two of them (the individualistic and the fatalistic) probably offer few opportunities for developing educational activities in the environmental area. For example, the individualistic rationality is supported by business and economic-oriented people who believe the market is the most efficient medium to regulate people's behaviours and attitudes. Moreover, the regions or groups of people who espouse fatalistic rationalities would most likely need effective assistance, before education was viable.

Thus, the recent initiatives on environmental education can be said to encompass by the other two rationalities: hierarchical and egalitarian. That is to say, government officials and experts telling us what to do with "the best available science" is underpinned by hierarchical rationality (Gough, 2002, p.280). One example of this is recycling systems taken on board in a number of local governments in Japan. For example Minamata city in Japan, which experienced serious industrial pollution that brought a number of causalities in 1960s, is now keen to have environmental regulations. The city developed one of the tightest regulations for recycling materials, i.e. encouraging its citizens to separate 22 kinds of materials (transparent glass bottles, coloured glass bottles, steel cans, aluminum cans, and many other categories) and bring washed materials to a specific place allocated to each block of residences. Because of this initiative, the municipality managed substantially to decrease the amount of waste (Minamata city, http://www.minamatacity.jp/jpn/kankyo_etc /gomi/gomi_top.htm).

On the other hand, other people might have an egalitarian rationale. As seen in Introduction, O'Neill (2006, December 8), a liberal commentator in the UK, was against that the authoritative people's cautions have been accepted without any criticism, and that the

people have been offering strict behaviouristic solutions for environmental problems based on those discourse. Under the terms of egalitarian rationality, environmental initiatives need to be associated with social justice and democracy, and strong participation; not just participating in a programme that tells you what to do or follow the regulations without any critical consideration. According to this approach, through the participatory process values and attitudes will be nurtured and made more concrete (Gough, 2002).

3.5 Summary of this Chapter and Variables Regarding Theory and Practice in this Research

This chapter has explored the different positions regarding context and change, from the: civilisational, anthropological, sociological dimensions and rationality for change based on cultural differences. Comparison of civilisations has been examined by considering Huntingtons's theory of the clash of culture, which differentiates civilisations into categories, such as: Western, Islamic, Hindu and Confucian forms. The anthropological aspects have been considered from the industrialised, agricultural, and indigenous cultural perspectives and particular attention was paid to the tension between Western industrialisation and indigenous cultures. Sociological aspects have been explored as mechanisms and organisms by considering them in terms of the ontological and epistemological views of science. In addition, with regards to rationalities of change, Thompson's cultural theory (hierarchical, individualistic, egalitarian and fatalistic rationalities) was discussed in relation to environmental education.

As posited in the first section (2.1) in Chapter 2, a consideration of the multiple layers of: practice, ideology and context, is viewed as being the appropriate approach for an investigation into effectiveness of the operationalisation of theory into practice. Thus, with

regards to one of the layers, the second part (2.2) of Chapter 2 reviewed the range of ideological perspectives. Following this, Chapter 3 has explored the range of perspectives in terms of context and change. These ideological and contextual explorations have been shown as being related in a multi-layered way and the preceding two chapters (Chapters 2 and 3) have given some insights into the possible variables involved.

So as to examine the operationalisation of theories into practice, this research investigates the specific environmental education practices which have been implemented by the possible opposing theoretical and ideological views. The possible opposing ideologies are: deep ecology vs. shallow ecology (Naess, 1985), ecocentric vs. technocentric (O'Riordan, 1989), ecocentric vs. egocentric (Merchant, 1992) and radical vs. reformist (Pepper, 1996), as discussed in Chapter 2. The selection of the cases was determined, to some extent, by the expected difference in the variables which would be found within each organisation.

However, this research also seeks to examine into operationalisation of theory into practice in terms of different view of context and change. Thus, the UK and Japan were selected as countries where a contrast of the level of context was expected. Both countries have a long history of environmental education and yet are significantly culturally diverse and as a consequence when a comparison of their environmental education practices is made, substantial differences are expected to emerge.

In the next chapter, putting aside these theoretical frameworks in this research, the substantive contribution of the research is considered, and an appropriate approach for investigation in relation to these theoretical frameworks is discussed.

Chapter 4

Research Perspective: Framing the Evidence-Based Approach

This chapter considers the substantive contribution of this research and frames an appropriate approach. In particular, the current relevant issues in educational research are taken into account (4.1). Education research is often fragmented and does not accumulate knowledge thus it is hard to make the links with policy-making and practice. Reflecting on this problem, the next section (4.2) examines purposes of research and then focuses on outlining evaluation and evaluation research which are the initial form of inquiries that can directly contribute to policy-making and practice (4.3). Moreover, while recognising the potential limitations of such research, a justification is made for using an evidence-based approach (4.4). Also, the advantages and disadvantages of evidence-based approach in the environmental education field are then discussed (4.5). Finally, the approaches that were applied in this study are summarised (4.6).

4.1 Introduction to the Problems in Education Research

Since the late 1990s, education research has been criticised from the perspectives of both policy and practice. A number of education researchers wrote a series of reviews and criticisms of education research, such as: Hargreaves (1996, 1997), Tooley & Darby (1998), and Hillage et al. (1998). For example, Hargreaves (1996) claimed that despite the millions of pounds of funding spent on education research in the UK, its quality has been poor. Hillage et al. (1998) supported this viewpoint, arguing that the funding has not been well spent. In addition, Tooley & Darby (1998) worried about the influence of ideology in education research. Pring (2000, p.1) clarified these problems and summarised into four points as follows:

1. Research does not provide the answers to the questions government asks in order to decide between alternative policies;

2. Research does not help professional practice in such matters as the teaching of reading or pupil grouping or teaching methods;

3. Research is fragmented – lots of bits and pieces which, though often addressing similar questions, start from different positions or use different samples, not creating a coherent and reliable basis for practice or policy;

4. Research is often tendentious or politically motivated – and exclusive of those who do not share the ideological underpinnings of the research programme (Pring, 2000 p.1).

This debate has continued up to the present day (e.g. Oakley, 2001, 2003; Andrew, 2005; Oancea & Pring, 2008), and without managing to resolve it. Reflecting these discussion and movements, this study intends to make a contribution towards policy and practice.

4.2 Research, Policy and Practice

Hammersley (1995, 2002) based his interpretation of the relationship between research and policy making and practice on Janowitz's (1972) models: the 'engineering model' and the 'enlightenment model'. According to him, the engineering model distinguishes between 'basic research' which creates theory, and 'applied research' which directly influences policy. On the other hand, the enlightenment model does not make a clear distinction between types of research. Rather, research from this standpoint supplies useful information to policy makers and practitioners. In social science research or educational research, following the 'interpretive turn' (Rabinow & Sullivan, 1979) of the late 20th

century, the enlightenment model has become regarded as the appropriate model over the engineering model. The enlightenment model seeks a deeper contextual understanding whereas, the engineering form draws on a strong positivistic view and focuses on the discovery of absolute laws.

Within the enlightenment model in both social science research in general and educational research in particular, Hammersley (2002) distinguished 'strong enlightenment' from 'moderate enlightenment'. Strong enlightenment works from this standpoint: normally policy makers and practitioners are in the dark, therefore, research needs to provide the 'light' for them to make appropriate decisions (Hammersley, 2002, p.39). In this way, the strong enlightenment view shares a realist perspective with the engineering model. By contrast, the moderate enlightenment view admits a number of limitations of social science research, for example, the fallibility and narrowness of research (Hammersley, 2002, pp.42-46). Hammersley's model of the relationship between research and policy and practice is a useful starting point for this discussion. In order to enable wider consideration of the research approach, it is beneficial to bring together this view with other authors' categorisations as follows.

Table 4.1: Categorisation of research in relation to policy and practice

Theoretical model (Hammersley, 2002)	**Engineering model**	**Strong enlightenment model**	**Moderate enlightenment model**
Research utilisation (Estabrooks, 2001)	**Instrumental Research Utilisation** which 'implies a concrete application of research, where the research has often been translated into a material or usable form' and 'is used to direct specific decisions and/or interventions'	**Symbolic Research Utilisation** provides ammunition for partisan battles One of many kinds of information that can be used to justify a position	**Conceptual Research Utilisation** where 'research may change one's thinking but not necessarily one's particular action … In this kind of research utilization, research informs and enlightens the decision maker'
Intellectual project (Bolam, 1999, pp.195-197)	**Instrumentalist project** "to improve the practice and effectiveness of education managers via training and consultancy, often by providing structured schemes and practical instruments or methods"	**Knowledge-for-action project** "to inform policy makers and practitioners about the nature, process and effectiveness of educational administration in order to promote its improvement"	**Knowledge-for-understanding Project** "to understand the nature and processes of educational administration, via theory building and basic research"
			Reflexive action project "to improve their own, their team's or their organisation's, performance and effectiveness"

The table (Table 4.1) indicates that the assumption of engineering model (Hammersley, 2002) might be consonant with instrumental research utilisation (Estabrooks, 2001) and tends to be a form of instrumentalist project (Bolam, 1999); the assumption of strong enlightenment model (Hammersley, 2002) might be consonant with symbolic research utilisation (Estabrooks, 2001) and tends to be a form of knowledge-for-action project (Bolam, 1999); and the assumption of moderate enlightenment model (Hammersley, 2002) might be consonant with conceptual research utilisation (Estabrooks, 2001) and tends to be

a form of knowledge-for-action project and reflexive action project (Bolam, 1999). This is a heuristic and tentative categorisation to examine research types and each category may not correspond precisely with Hammersley's models. For example, the knowledge-for -understanding project in Bolam's classification might fit within the engineering model in Hammersley's models, in regard to theoretical exploration or theory building. However, it is possible that these three separate but similar models provide the evidence of Pring's third bullet point (See the previous section 4.1) about fragmentation of the research.

Returning to Pring's arguments above (4.1), there is increasing demand for education research to contribute to policy and practice. Thus it might be expected that this would lead to the prioritization of the engineering or strong enlightenment models, within which research can be used as "direct specific decisions and/or interventions" (Instrumental research utilisation) or provide "ammunition for partisan battles" (Symbolic research utilisation) (See Estabrooks, 2001 in Table 4.1). Although Hammersley has insisted that the engineering model is inappropriate for social science and education research, in Pring's view, engineering model of research still might be suggested as research model which can contribute toward policy and practice. Therefore, this research is going to remain open to the engineering model, instrumental research utilisation, and instrumental project. Following on from this, the next section considers evaluation and evaluation research which comes up as initial form of research as engineering model.

4.3 Evaluation and Evaluation Research

Evaluation is the most common approach of inquiry among instrumental research utilisation (Estabrooks, 2001) and instrumental project (Bolam, 1999). Most common definitions of evaluation refer to "the process of determining the merit, worth or value of something, or

the product of that process" (Scriven, 1991a, p.139). Scott and Morrison (2007, p.96) summarised the broad spectrum of characteristics consistent with this as follows:

- the evaluation is about a determination of the value and worth of something;
- the 'something' is most usually an education and/or a social programme;
- the focus is upon programme activities, characteristics and outcomes;
- the methodology is policy oriented, in encouraging recipients of the evaluation to make decisions about what such programmes actually achieve and how they might be improved;
- the methods are systematic, accepted by parties to the evaluation, and judged in accordance with the criteria, which are fully explained and justified;
- the evaluation strives for impartiality and fairness, and to represent the range of perspectives among those engaged in such programmes (Scott & Morrison, 2007, p.96).

Most writers in the evaluation field would agree that there are two basic types of evaluation, those which are formative and those which are summative. Formative evaluation is conducted to provide feedback for improvement, whereas summative evaluation aims to determine programme outcomes to increase accountability. In a colourful metaphor, Stakes (quoted in Scriven, 1991b, p.19) suggested that "When the cook tastes the soup, that's formative; when the guests taste the soup, that's summative".

Table 4.2: Formative and Summative Evaluation (Adapted from Clarke, 1999, p.8)

	Formative	Summative
Target audience	Programme managers/ practitioners	Policy makers/ Funders/ the Public
Focus	Clarification of process	Outcome measures
Aim	For improvement For learning (enlightenment)	For accountability
The role of evaluator	Participative	Independent
Data collection	Quantitative and Qualitative (Emphasis on the latter)	Quantitative and Qualitative (Emphasis on the former)
Reporting	Informal and on-going during activity	Formal on completion of the evaluation

In the field of environmental education, a number of academics have paid more attention to formative evaluations rather than summative evaluations, especially outside the US. For example, formative evaluation, especially for programme managers and practitioners, can be found in a number of evaluation tools and resources that have been developed (See Bennett, 1984; O'Donoghue & Taylor, 1988; Leal Filho & Taylor, 1995; Stokking et al., 1995). One example of this was "Evaluating Environmental Education" published by the IUCN Commission on Education and Communication (CEC) (1999) for measuring the effectiveness of environmental education. This tool was created mainly for organisations to evaluate their programmes and contains 13 steps, which are easy to follow. Acknowledging the clarity and usefulness of this work, Gough (2000, p.397) reviewed it as, "this is a book with a deliberately limited scope. It is about a particular approach to evaluating a particular subset of environmental education". Also, the recent on-going project by researchers in Europe and Asia, which has been trying to develop 'indicators'—a form of evaluation—with regards to education for sustainable development (ESD indicator), has brought a number of complex issues to fore and provoked arguments on such matters as: the definition of an indicator, the meaning of the term sustainable development and the nature of environmental education.

In order to consider the contribution that evaluation can make to the body of knowledge in environmental education, the differences between evaluation and research need to be addressed. A number of academics have tried to distinguish between these two phenomena. However, Wolf (1990, p.9) argued that "[r]esearch is concerned with the production of knowledge that is as generalizable as possible… Evaluation, in contrast, seeks to produce knowledge specific to a particular setting." However, this brings forward another argument, which is that most qualitative research does not aim to generalise its results in a wider context. Shaw's categorisation (Table 4.3) helps to clarify this.

Table 4.3: The difference between evaluation and research (Adopted from Shaw 1999)

Evaluation	Research
Addresses practical problems (which tend to be short-term issues)	Addresses theoretical problems (which tend to be long-term issues)
Tends to culminate in action	Tends to culminate in description (knowledge)
Makes judgements of merit/worth	Describes
Evaluation methods	Research methods
Is non-disciplinary	Is disciplinary

Evaluation produces a set of information oriented towards action, whereas research produces 'knowledge' built up in academia. Hence, a project of knowledge-for-action (such as this one) can be linked with 'evaluation research', as some academics in the evaluation field have claimed. According to Rossi and Freeman (1993, p.5):

> "*Evaluation Research is the systematic application of social research procedures for assessing the conceptualization, design, implementation, and utility of social intervention programs.* In other words, evaluation researchers (evaluators) use social research methodologies to judge and improve the ways in which human services policies and programs are conducted, from the earliest stages of defining and designing programs through their development and implementation" (Italic in

original).

However, neither evaluation nor evaluation research are free from criticism. The findings of evaluation research are more likely to be used when the research findings are consonant with the beliefs and expectations of the users (Robinson, 1992). This relates to the third and fourth points of Pring's argument above (the previous section 4.1): that the education research tends to be fragmented and politically-motivated. Notwithstanding these criticisms, there is a new alternative approach growing in the social science field: 'evidence-based policy'.

4.4 Evidence-Based Policy

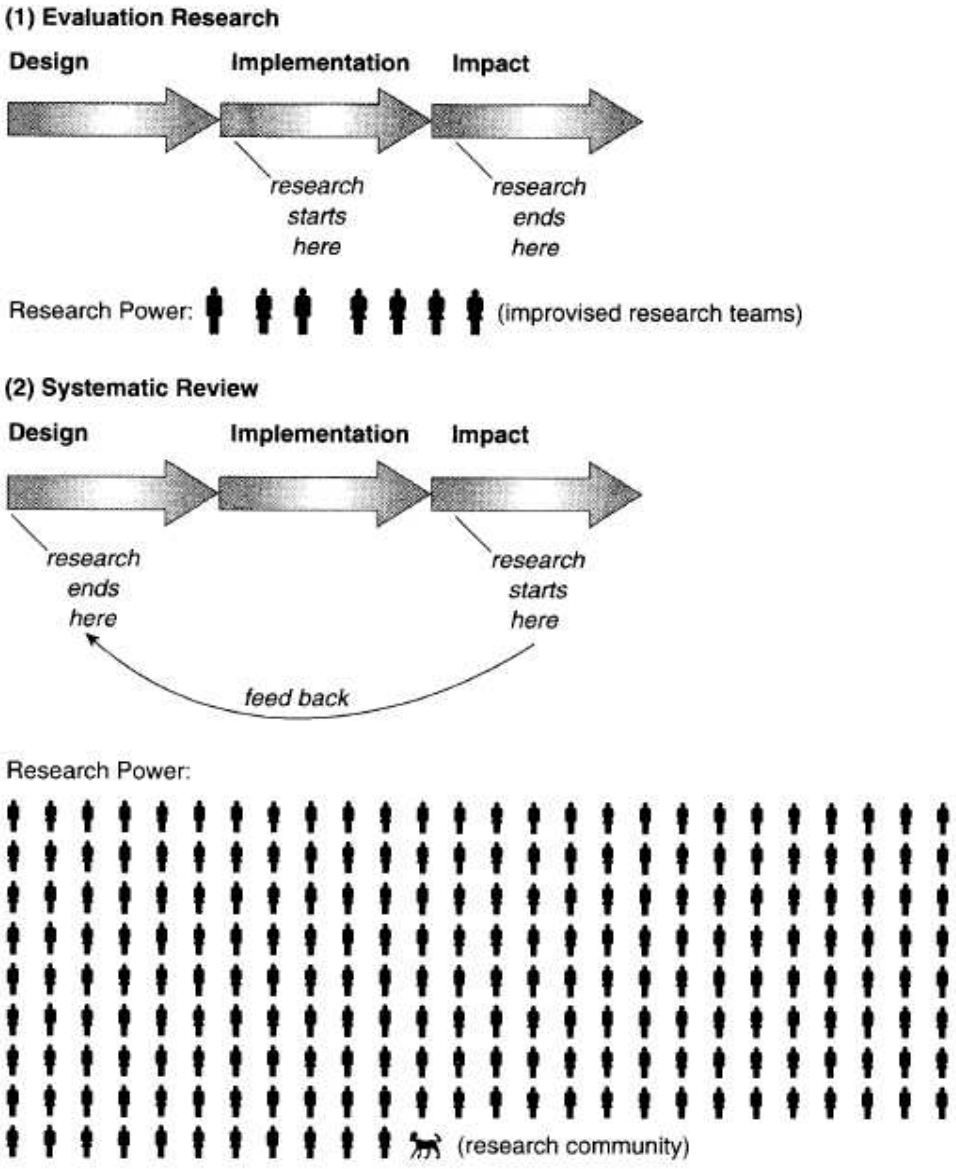
Evidence-based policy was developed from evidence-based medicine and subsequently came to influence to the social policy area. One of the key advocates of the evidence-based approach is Pawson (2002a), who claimed that previous evaluation research was to investigate "whether it works or not", whereas evidence-based policy addresses the question of "what works". Shaxson (2005, pp.104-5), working with the UK Government Department for the Environment, Food and Rural Affairs (Defra) to develop policy with an evidence-based approach, noted:

> "Research results are undoubtedly important to policy, but research is essentially a long-term process. Tony Taig, in a personal communication, points out that much policy making happens in response to very short-term pressures, where the need for evidence can be nicely summarised as 'please synthesise current knowledge to answer my pressing policy question'."

Pawson (2002a, p340) also pointed out that "[t]he policy cycle revolves more quickly than

the research cycle, with the result that 'real time' evaluations often have little influence on policy making". Thus, with these timing anomalies it is difficult for evaluation research to take its rightful place in making a significant contribution to the policy process. The following image illustrates the idea of the difference between evaluation research and evidence-based approach (See Figure 4.1).

Figure 4.1: The potential benefits of systematic review (Pawson, 2006, p.9 – Figure 1.1)



According to Pawson (2002a, 2002b), evidence-based policy can be defined broadly as having turned recently into: ‘systematic review’, ‘meta-analysis’ and ‘research synthesis’. Systematic review involves the selection of data from a particular predefined clear scope and to appraise the data and syntheses the findings. Meta-analysis takes a similar approach, but mostly aims to find and evaluate exemplary cases and research synthesis is also similar, but particularly focuses on analysing research literature. Usually, an evidence-based approach to research begins by compiling the available evidence and then classifying, analysing and synthesising the findings. The objective of evidence-based research, according to Pawson (2002a), is to delve into inconsistencies of evidence in order to build theories to offer to the policy makers.

Within the education field, the evidence-based approach has been rapidly developing in recent years (e.g. Hargreaves, 1997; Davis et al., 2000; Slavin, 2002, 2004; Thomas & Pring 2004; Oancea & Pring, 2008) , although it remains controversial to many academics (e.g. Hammersley 2001, 2002; Biesta, 2007). The recent movements include the establishment of the What Works Clearinghouse (WWC) in the US Department of Education’s Institute of Education Science in the US, and the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) at the Institute of Education in London in the UK. The purpose of the approach appears to have been be interpreted quite widely, not only for improving policy but also for developing practice. In Hargreaves’ (1997) view, the concept of evidence-based practice is being developed in an attempt to systematically incorporate research evidence into professional knowledge and thus to resolve the unsatisfactory relationship between research and practice, also noted by Pring (Section 4.1).

Evidence-based approaches have started to be recognised in the field of environmental education research. In the special issue of the journal “Environmental Education Research”

an article entitled “Researching education and the environment: retrospect and prospect” by Reid and Scott (2006, p.571) stated:

> “That a field must develop and move on if it is to survive and flourish has been reinforced by demands for evidence-based approaches to policy and practice in education. Such approaches are now common goals and rhetorics in the arenas of policy-making and practice, to which environmental education researchers are increasingly expected to - and do - contribute. In fact, both evidence-based policy and practice have become closer and more frequent realities, even ‘reality checks’, so to speak, for environmental education and research.”

The concept of an evidence-based approach can be viewed broadly as: meta-analysis, systematic review, and research synthesis. In the following section it is helpful to explore a few examples of this research within the field of environmental education and then to consider the various issues that emerge from it.

4.4.1 Example One: Systematic review of environmental education practice

The first example is a strategic review of sustainable development in higher education in England commissioned and funded by the HEFCE (Higher Education Funding Council for England) (HEFCE, 2008). This review was intended to create a baseline of sustainable development practices in three areas, namely: research, estates and teaching and learning, in 132 higher education institutions within England. In the review on teaching (Katayama & Gough, 2008), the research defined the scope of ‘sustainable development’ in a particular way, after discussions with the fund holder. Subsequently, the researchers: conducted interviews, web based searches, database searches, and collected data from direct contacts to the institutions, through assistance from the funding agent. The data were compiled into a

database and reported in a mainly, but not exclusively, qualitative manner. The number of courses, including both programmes and modules identified was more than 1600 across a wide range of subjects and institutions. Hence a strong indication of the state of teaching, relating to sustainable development in higher education institutions in England, was obtained.

This research was well-received; however, the following questions were raised at a meeting of the steering committee appointed by HEFCE to oversee the project:

> "in relation to teaching, how fair is it to say that the research (and database) provides considerable evidence that institutions have teaching programmes focusing on sustainability, but that is limited detail about exactly *what* they teach, and much less about *how* this is done, with very little detail about *how effective* any of this is, or about students learn?"

Some of the courses in the database did describe within their documentation details of teaching and feedback from students about the course. However, because of the various and numerous form of descriptive data provided by each institution, the researchers found it difficult to create a standard review framework to evaluate all the courses. Also, owing to the large scale of the project, carried out within a limited time constraint and budget, the effectiveness of the teaching was not systematically addressed. Nonetheless, this project was a good example of the establishment of the first step or the creation of a baseline from large scale evidence-based policy making, which contributed to the development policy, in terms of promoting increased sustainable activity in higher education.

4.4.2 Example Two: Meta-analysis of case studies on environmental education

The second example is "An evaluation of the contributions of educational programmes to conservation within the WWF Network", conducted by Fien, Scott and Tilbury in 1998-1999 (WWF, 1999a, 1999b). This involved a systematic review of a group of case studies concerned with improving the practice of the World Wide Fund for Nature, which is a large international conservation organisation with branches in many countries. The objectives of the evaluation were: to identify successful approaches; to identify successful networking and synergetic activities; and to make recommendations to enhance further efficiency and effectiveness (WWF, 1999a, p.10). The approach was framed as a participatory evaluation with the assistance of an evaluation steering committee. It involved: analysis of over 200 sets of materials and documents, field visits to 13 countries, and interviews with nearly 400 people during those visits. The findings and recommendations were presented in the final report (WWF, 1999a).

According to the evaluators' reflections on this process (Fien et al., 2001), there were initial challenges facing the evaluation, i.e. how to evaluate and what to evaluate, owing to the immature status of evaluation research in this field. They searched the relevant literature more widely, in an attempt to determine how to evaluate organisational practice and, adopted "illuminative (Parlett & Hamilton, 1976), programme (Jacobson & McDuff, 1997), stakeholder (Bryk, 1983; Greene, 1987) and participatory evaluation (Institute for Development Studies, 1997)" (all the references in Fien et al., 2001, p.381) to achieve this. As for what to evaluate, they needed to include evaluating conservation, as education is seen by the WWF as a "tool" or "instrument" for promoting the conservation of biodiversity.

A further article was published to synthesise a set of principles of "good practice" in

education within conservation (Fien, 2002) and summarised the following attributes: focus, the promotion of sustainable development, integration, pedagogy, breadth of audiences, focus on multipliers, building partnerships, focus on key decision makers, focus on transforming systems not just practices, innovation, leadership and support, participatory planning, effective management, and participatory research.

4.4.3 Example Three: Synthesised research on environmental education

This example is taken from a review of recent empirical studies of learners and learning in primary and secondary school environmental education (Rickinson, 2001). The author tried to be systematic, comprehensive and analytical. The findings of the review were based on "careful scrutiny" of more than 100 journal articles, books and reports published between 1993 and 1999. The finding were organised into six concentrations or nodes of evidence. Three of these were well established i.e. students' (i) environmental knowledge (ii) environmental attitudes and behaviours, and (iii) environmental learning outcomes,, whereas the other three could be regarded as emergent students' i.e.(i) perceptions of nature, (ii) experiences of learning, and (iii) influences on adults. Rickinson (2001, p.207) concluded that:

> "Overall, the review suggests that the evidence base on learners and learning, while considerable in size, is less diverse in terms of methodological and theoretical approaches than the wider environmental education research field within which it is situated."

Responding to this research, Sauvé and Berryman (2003, p.170) questioned Rickinson's neo-positivistic posture:

> "However, despite the observed neo-positivist analytical framework, Rickinson explicitly values the diversity of research paradigms and deplores that evidence on learners and learning comes mainly from research that is 'quantitative in nature and positivist in foundations'. Is this really surprising? Interpretative research does not search for evidence but for significance or meaning in the symbolic and idiosyncratic universe of subjects. Socially critical research does not essentially search for results of empirical nature either; rather it seeks the socio-construction of contextually relevant knowledge aiming at personal, social and environmental transformation."

However, even accepting the need for Rickinson to explain his theoretical ground more explicitly in his paper, this researcher considers it premature to reject the 'evidence-based' approach, as this might entail 'throwing out the baby with bath water'. As Pring (2004, p.203) stated "what counts as evidence will depend upon the kind of discourse one is engaged in", thus there needs to more attention paid to explaining the position and view of the researcher who going to conduct the evidence-based study.

4.5 Issues Raised When Using the Evidence-Based Approach in Environmental Education Research

These three examples of research contributing evidence for policy and/or practice were all quite large scale and two of them were directly funded by the stakeholders. The HEFCE baseline review provided evidence of the current state of teaching and sustainable development in higher education institutions, and the WWF review generated knowledge of good practice in education in conservation. Rickinson's review has also been recognised as a systematic bank of knowledge to guide future research in this area (Reid & Nikel, 2003).

In light of this, it would appear that evidence-based approaches could go some way in providing a possible resolution to the issues in education research raised by Pring. However, the following three philosophical difficulties for evidence-based approach in education were raised by him as:

1. the logical unpredictability of all the consequences of a particular course of action or a particular policy;
2. the irreconcilability of scientific discourse (and thus the social sciences within a particular tradition);
3. the logical separation of educational 'ends' or 'goals' from the 'means' of archiving them (Pring ,2004, pp.204-5).

The first point is, according to Pring, that because of the necessary unpredictability of complex social situations, there is a question of how far the accumulated evidence can assure particular consequences. Of course, any kind of research projects in social science and education cannot predict a future consequence in complex social contexts. However, it is fair to suppose that evidence-based approaches could allow for an understanding of a variety of contexts in a more holistic and systematic way, through the accumulation of evidence.

The second point indicated by Pring has also been observed, in general terms, in Example 3 above and that is that he was referring to scientific discourses of medicine and health as opposed to education. In the example of Rickinson's systematic review, Sauvé and Berryman (2003) pointed out that reviewing research from this positivistic attitude of his evidence-based approach ignored the other paradigms of research such as interpretivist research or socially-critical research.

The third point comes across clearly in Example Two. The WWF review clearly noted that within the scope of conservation organisations education is a tool to achieve conservation goals. However, in the wider context, education is of intrinsic, and not merely instrumental, value. (Jickling, 1992, 1994; Foster, 2001; Scott & Oulton, 1999; Gough & Scott, 2007). As Jickling's (1992) well-cited article argued, education for sustainable development or education for anything includes a suggestive activity to achieve an instrumental aim, and this, he argued, is contrary to the spirit of education. More recently, as mentioned in the earlier chapter, Gough and Scott (2007, pp.8-12) put forward the question of the purpose of higher education which they split into two: an instrumental 'real world view' and an intrinsic 'ivory tower view' (See Chapter 2).

4.6 The Approach of this Research

The discussion so far has sought to position this research in an evidence-based approach, employing meta-analysis to explore effective environmental education practices. These were examined across different environmental education theories which are supported by different ideologies and different perspectives of context and change, as discussed in Chapter 2 and 3.

However, the scope of the research was quite narrow, as it aimed to conduct in-depth qualitative research restricted to four specific settings. Considering the issues raised in the previous sections (4.1 to 4.5), the following methodological questions are raised and are discussed in the next chapter:

1. How can it be possible to use an in-depth and qualitative study of effectiveness of environmental education to inform an evidence-based approach?
2. How can it be possible to accommodate different and competing views of both ideologies and contexts within an evidence-based approach?
3. Is it possible, within an evidence-based approach, to consider instances of environmental education, without the separation of ‘ends’ and ‘means’, and giving due consideration to any intrinsic value they may have?

Chapter 5

Ontological and Epistemological Issues

This part (Part II Methodology: Chapter 5 to Chapter 8) addresses a whole range of methodological considerations raised by this research: ontology, epistemology, the overall approach to the enquiry. Exploring ontology and epistemology is a necessary and prior step in any social science as it influences decisions on the inquiry approach and methods. An extensive methodology literature defines the concepts of ontology and epistemology, however, there is much confusion between the terms 'methodology' and 'methods' and also between epistemology and methodology as they are mutually associated ideas. In this thesis, these terminologies are understood as follows: ontology considers 'what is the nature of reality?'; and epistemology considers 'what is the nature of knowledge?' or 'why can it be knowledge?' that is the rationale or justification of the knowledge. Methodology seeks to address the question of 'how to make knowledge' and subsumes both theoretical considerations such as methodological paradigm and the substantive methods for inquiry. Meanwhile, 'methods' denote the techniques of collecting data.

This discussion of methodologies is formed around the application of evidence-based approaches, as discussed in Chapter 4. In this chapter, it firstly puts forward an ontological discussion in education and environmental education in order to clarify and justify the neo-realist view underlying an evidence-based approach (5.1). Secondly, it focuses on the epistemology of that approach (5.2). Drawing on criticisms of the positivistic tendency within the evidence-based approach, then it asks what can count as 'evidence'; and what might be meant by 'systematic' review or 'synthetic' findings (5.3). On the basis of those considerations, it describes the strategy adopted for this research.

5.1 Ontological Issues

In one of the most well-known references of education research methodology, Cohen, Manion, and Morrison (2000) identified two strongly different ontological ways of looking at reality drawn from the work of Burrell and Morgan (1979). These are nominalism and realism. According to Cohen et al. (2000, pp.5-6), the former is "the result of individual cognition" which is "created by one's own mind" and the latter is "reality of an objective nature" which is "out there in the world". The nominalist-realist debate, which dates from the Middle Ages, provides a useful starting point. It provides a basis for Cohen et al.'s (2000, p.7) conceptualisation of epistemology – as a struggle between anti-positivism and positivism - according to either nominalism or realism. However, this is a contested view. For example, Rowbottom and Aiston (2006) suggested that Cohen et al's work enshrines a false dichotomy of ontology in education research and suggest that "the fixation with science versus non-science is counterproductive" (Rowbottom & Aison, 2006, p.138).

In the same line of discussion, Pring, in his paper "The 'False Dualism' of Education" (2000)[7] attempted to avoid the dualistic extremes between the naïve realist paradigm and the radical relativist paradigm, and instead proposed a neo-realist ontological view of educational research. According to Pring (2002, p.245), neo-realism offers a way of conceiving reality that is "objective as far as that which is conceived, not objective as far as the way in which it is conceived". However, he is not simply saying 'naïve realism' and 'radical relativism' are wrong, but that "in the ways in which both physical and social realities are conceptualised, the very possibility of the negotiation of meanings presupposes the existence of things" (2002, p. 255).

Responding to Pring's article, D. Scott (2005, p.633) offered "a corrective to a neo-realism

[7] The paper also can be found in his book *Philosophy of Education* (Pring, 2004, pp.228-243).

viewpoint" and supports critical realism as the best alternative view. Although he respects neo-realism as "sophisticated realism; epistemological objectivity; the necessity of a notion of truth; and the possibility of both identifying an ontological framework and the means for deciding between incommensurable reality", D. Scott's criticism of neo-realism is that it dismisses the significance of agency/structure relations.

Here it is necessary to clarify the similarities and difference between neo-realism and critical realism. For Roy Bhaskar (1975), who is a leading figure in realism[8] in social science and approaches science thinking in a philosophical way, the ontological view of critical realism is that something is real if it causes physical consequences. In this sense, the ontology of neo-realism and critical realism about which Pring and D. Scott are arguing respectively, are similar. Critical realism, however, might be of a different form, as for example, D. Scott identified a dimension of critical theory, which concerns the sociological critique of society and was influenced by Marxist theories. However, this is a different issue to that with which ontology is concerned.

Developing from the argument between Pring and D. Scott, that is the debate between neo-realism and critical realism, Smith and Hodkinson (2002, 2004) adopted a framework of neo-realism versus relativism for education research. According to them, the neo-realists are committed to the idea of a real world out there and are fond of metaphors about finding and discovering it; on the other hand, they accept knowledge is socially-constructed in part. For many neo-realists, social and educational reality "sets limits upon what can be accepted as warranted, plausible, credible, and so on" (Smith & Hodkinson, 2004, p.153). The relativists also admit there is reality out there, but they prefer the metaphor of constructing and assume "we can never know if we have accurately depicted that reality" (Smith &

[8] Bhaskar initially called his view as 'Transcendental Realism' in *A Realist Theory of Science* (1975), however which was widely received as critical realism in social science.

Hodkinson, 2002, p.192). For relativists, the notion of reality out there is "just that it is an assumption that cannot be cashed in, in order to discriminate among differing interpretations of the motivations, intentions, experiences, actions, and purposes of people" (Smith & Hodkinson, 2002、 p.192). This distinction shows that the neo-realists accept 'metaphors of discovery' while the relativists prefer 'the metaphors of constructing'. Use of these two categories improves an oversimplified dualism between a naïve realism approach with a 'reality is entirely knowable' attitude and a radical relativist approach where 'reality is entirely unknowable'. The most significant point here is that D. Scott's view, that embraced critical theory, is regarded by these academics (Smith & Hodkinson, 2002) as ontological relativism.

The above debate is paralleled in environmental education research. For example, Huckle (1993, 2004) is one of the strong advocates for critical realism in environmental education. His argument (2004, p.38) is that critical realism offers the philosophical framework (in this case, for designing a curriculum for sustainable development for higher education) since "critical realism offers a unified approach to the natural and social sciences while recognising real but different structures and process with the physical, biological and social world". Critical realism, according to him, regards "nature as socially constructed or produced" (Huckle, 2004, p.39) and so has an ontological (not epistemological) relativist perspective. More specifically, Huckle (2004, p.39) argued that "Nature in the realist sense sets elastic limits on how people can live in the world, but for the critical realist nature is a theoretical, explanatory concept, not a source of value". From these quotes, his ontological position can be interpreted as a strong ontological relativist view (not realist view) in Smith and Hodkinson's terms (2002), which can be linked to epistemological social-constructivism in a wider academic context, although he argues his perspective as 'critical realism' specifically for environmental education research. Clearly, Huckles's use

of the term ‘critical realism’ is different from that of Smith and Hodkinson as follows:

> “Critical realism is anti-positivist since it claims that to explain a phenomena it is not sufficient to show that it is an instance of well established regularities or connections, but necessary to discover its connections with other phenomena via knowledge of underlying structures and mechanisms that work to produce these connections. It accepts a weak social constructivism (Dickens, 1996) by recognising that social reality is pre-interpreted and that language, discourse and ideology shape constructivism that denies the material reality of nature.” (Huckle, 2004, p.38-39)

His statement of “critical realism is anti-positivist” is paradoxical since in wider literature, for example, Bhaskar (1975), critical realism admits reality, that can lead to a form of positivism in the associated methodological paradigm. Thus it can be suspected that this statement appears to reflect a confusion between critical realism and critical theory. By extension, in the environmental education field, critical realism and critical theory, meaning an ontology and a theory, are often confusingly used interchangeably, and there is no clear explanation to distinguish them. This explanation is forwarded to the following box (Box 5.1)

Box 5.1: Critical realism, Critical theory and Critical pedagogy

The similarity of those terms is each one includes the word "critical"; however, they are significantly different. First of all, categorically critical realism is a philosophy of perception of reality, critical theory is a social theory, and critical pedagogy is an education theory and practice. That is to say, each term has emphasis on respectively nature/science, society and education. The short description of each term is presented below:

Critical realism
Generally speaking, critical realism denotes the position which claims for an objectively knowable reality, while admitting subjective cognition at some extent. Roy Bhaskar (1975) is probably most well known work in critical realism though describing his own idea as 'transcendal realism'. Bhaskar developed a philosophy of science in order to explore inter-relationship between human and nature.

Critical Theory
Critical theory originates from the Frankfurt School of social science. It is a social theory, which considers critiquing and changing society. Key thinkers in critical theory include Pierre Bourdieu and Michel Foucault. Critical theory also developed into feminist theory, post colonial theory, queer theory, and so on.

Critical Pedagogy
Giroux (1987, p.120) argued that critical pedagogy aims at achieving real democracy in school and empowering students as "critical thinkers and transformative actors". Another famous critical pedagogy theorist, Freire (1974, p.75) believed that "to speak the true word is to transform the world" and proposed problem-solving education concerned with revealing problems in social reality. Kemmis and Fitzclarence (1986) developed socially-critical curriculum theory which is, in short, conceptualised as an educational approach to help learners acquire critical awareness and empower them to be emancipated from a certain kind of domination.

What needs to be clarified is that critical theory and critical pedagogy are inherently consistent with a socialist project; however, (ontological) critical realism provides grounds for the belief what science has a role in achieving understanding of human affairs.

Contrary to Huckle, who advocates 'critical theory', Scott and Gough (2003) recognised the implications of complexity, uncertainty, risk and necessity on sustainable development and

learning, and offer a co-evolutionary view. Within the co-evolutionary views, Gough and Scott (2006, p.275) basically rely on a foundationalist view of nature, which can be seen from their epistemological stance: they suggested there is a need for differentiating the level of perception of scientific understanding. (in this case about learning; however, there might be some implications for research):

- when we really know something (we might decide to teach it);
- when we really don't (we might decide to teach the parameters of the doubt involved):
- the need to sometimes make important choices in the *absence* of the incontestable (natural or social) scientific guidance (Gough & Scott, 2006, p.275).

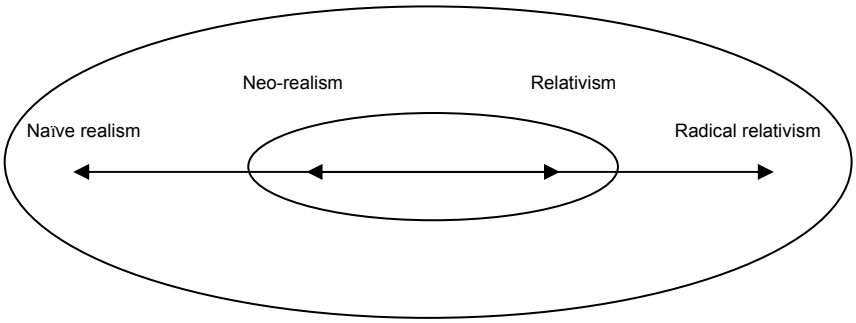
Furthermore, respecting critical realism, Gough (2006, p.337) justified a co-evolutionary view in the research context as follows:

> "It is now rather a commonplace to say that the environment is socially constructed. It should be obvious, however, that this does not mean we can construct it any way we like. The natural world changes both in ways which are partly or wholly consequential on human action, and in ways which are not."

The key idea in this move away from Huckle is that Scott and Gough are arguing that nature constructs societies, even as societies construct nature. As they cite from Norgaard, human activities: "modify the ecosystem, while the ecosystem's responses provide cause for individual action and social organization" (Norgaard, 1984, p.528 in Scott & Gough, 2003, p.8).

The discussion of ontology in education and environmental education field is summarised in the figure below (Figure 5.1). The figure illustrates that the distinctions between realism and relativism may be bridged (See neo-realism and relativism in the middle circle); however, neo-realism and relativism still hold significant dissimilarities.

Figure 5.1: The ontological view in education and environmental education research



Some parallels can be made with Stables' (2001) four fold classification of epistemology in environmental education, namely: 'science-realism', 'post-foundationalism', 'critical realism' and 'relativism'. These are set out and defined in the table below.

Table 5.1: Epistemological conflict in environmental education (Stables, 2001, pp.248-250)

Science-realism	Critical realism	Post-foundationalism	Relativism
"EE [environmental education] is a field which needs to be underpinned by 'hard' (mathematical/'natural' /physical) science: by such knowledge as we have of how increasing carbon dioxide levels might alter climate, for example."	"The interdependence of natural and social systems (with practical activity mediating between them), does not see the social as reducible to the natural. To Bhaskar, the human sciences are 'taxonomically and causally *irreducible* but *dependent* modes of matter' (1986, p. 113 italics in original)."	It "retains a degree of realism in that there is assumed to be a real world of nature that is under threat….at our relationship to nature more generally, and they will, by their differential adoption, have differential consequences on the biosphere, though none can be held validly to underpin the others."	It "will acknowledge only perceptions of the environment…. Our conceptions of nature are thus mere simulacra; our realities are textual, virtual and socially constructed, and they have no stable meanings."

In this four fold classification, again it is noted that the critical-realist position within environmental education such as that of Fien and Huckle tends more simply to locate reality within the social, or rather, conflates the social and the environmental, which is not as same as Bhaskar' s position. Bhaskar emphasised the need for an understanding of the articulation between natural and social systems in the move towards social justice (Stables, 2001).

This discussion has so far sought to clarify the ontological view of an evidence-based approach to this research in a wider picture. The next section details some epistemological issues entailed in following an evidence-based approach.

5.2 Epistemological Issues

The ontological distinction between neo-realism and relativism adopted from Smith and Hodkinson's ontological framework (See above) underpins the exploration of epistemological issues in this research. Given that the research is going to employ a form of

evidence-based approach, it is essential to consider the meaning of 'evidence' as a starting point. The etymology of evidence, according to Upshur (2001, p.6), originates in "the concept of experience, relating to what is manifest and obvious, apparent to sight". Thus it is based on empiricism.

The central distinctive feature of an evidence-based approach is its difference from 'opinion-based' or 'personal experience-based' practice or policy (Slavin, 2002). Evidence-based approaches, as mentioned in Chapter 4, started in medicine through accumulating research findings from randomised control tests (RCTs). Some advocates of the evidence-based approach in education, such as Slavin (2002), acknowledged that the systematic accumulation of RCTs research as the most trustworthy form of evidence and went on to suggest that education research needs to emulate this:

> "At the dawn of the 21st century, educational research is finally entering the 20th century. The use of randomized experiments that transformed medicine, agriculture, and technology in the 20th century is now beginning to affect educational policy" (Slavin, 2002, p.15).

Thus the issue of evidence has, to some extent, become focused around the discussion of the epistemological debate between medicine and education, and also between positivism and anti-/non-positivism. These different views are now considered in the light of the series of debates between Hargreaves (1996, 1997), Hammersley (1997) and others, on evidence-based approaches in education. The debates arose from a lecture at the Teacher Training Agency (TTA) presented by Hargreaves in 1996. This compared education and medicine, and suggested that education practice should be based more on research evidence, as happens in the field of medicine. In medicine, research findings are accumulated and

directly transferred to practice, whereas education research is typically non-cumulative, and therefore has little influence on policy and practice. In Hargreaves' epistemological viewpoint, knowledge can and should be accumulated systematically and a number of academics supported this view (e.g. Davis, 1999, 2000; Evans, 2000; Evans & Benefield, 2001; Elliot, 2001), whilst some others opposed this very critically (e.g. Norris, 1996; Gray, 1996; Edwards, 1996; Hammersley 1997). Clarifying Hargreaves' ideas, Thomas (2004, p.9) portrayed this view of systematic accumulation in the following figure (Figure 5.2), which represents: "a more systematic incorporation of research evidence to the tacit knowledge/craft knowledge practice cycle".

Figure 5.2: Evidence-practice cycles (Thomas, 2004, p.9 - Figure 1.2)

Hammersley (1997), for one, strongly objected to Hargreaves' lecture. In principle, Hammersley questions the comparison between medicine and education, and objects to the imposition of a positivistic medical model on to education. Admitting the non-cumulative character in education research, Hammersley (1997) accepted that education research needs to build up on earlier work, but remained sceptical about evidence-based research. For example, the interpretation of 'systematic', according to Hammersley (2002), seems to be 'issue-focused' and 'transparent'. Among these two points, he has no objection to the first, which is about having a clear focus on a specific issue, however, he argues that 'traditional' and 'narrative' reviews play the same role and are both focusing on a specific issue. This criticism is apparent in the cynical title of his article "On 'systematic' reviews of research

literatures: a 'narrative' response to Evans & Benefield" (Hammersley, 2001). In terms of the second point of transparency, that is to say clear and explicit procedures in the systematic review process in an evidence-based approach, Hammersley (2002, p.5) strongly insisted that "[n]othing can be *absolutely* explicit or transparent" (Italic in original), from the ontological relativist perspective (See Table 5.2).

This debate between supporters and opponents of evidence-based approaches demonstrates a typical controversy between realism and relativism. Moreover, in environmental education, as mentioned in the previous chapter, Sauvé and Berryman (2003) criticised the evidence-based approach in environmental education research on the grounds that it entails a positivistic view. In light of the four-fold classification of ontology, which was introduced earlier, the opposed viewpoints of epistemology can be compared and summarised, as shown in Table 5.2 below:

Table 5.2: Ontological and epistemological views

Ontological framework	**Naïve realism**	**Neo-realism**	**Relativism**	**Radical relativism**
Epistemology	**Epistemology 1 "We can know everything"**	**Epistemology 2 "We cannot know everything, but we can accumulate the available knowledge systematically."**	**Epistemology 3 "We cannot know everything; therefore we cannot accumulate the knowledge systematically."**	**Epistemology 4 "We cannot know anything"**
Epistemology in environmental education (Stables, 2001)	(Science-realism)	(Critical realism)	(Post-foundationalism)	(Relativism)

This discussion of epistemology sheds useful light on how a more sophisticated kind of evidence-based approach might be developed. In particular, as Hammersley (2001, p.549) articulated:

> "It is striking that while advocates of systematic review emphasise that qualitative studies have a role, it is not at all clear how these studies would fit into its framework, given the positivist assumptions that framework involves."

This research accepts this challenge and attempts to bring qualitative insights to an evidence-based approach, since it also investigates effectiveness of environmental education by analysing its context (See Chapter 1). In particular, it tries to bring contextual implications into the approach, as suggested by Madjar and Walton (2001, p.29) when they explained why qualitative research is essential to sound evidence:

> "We accept that (a) evidence does not exist in a vacuum but is contextual, in the sense that 'facts can only became evidence in response to some particular question' (Chandler et al., 1994, p.1) and (b) the rules and standards by which facts are given the status of evidence are themselves products of historical and social processes, including conventions and ideologies".

As it stated, this research also recognises the importance of contexts—i.e. historical and social changes and processes as already reviewed in Chapter 3.

5.3 Qualitative Approach to Acquiring Evidence

As discussed above under the ontological issues, the false dichotomy of education research

was conceived from the strong polarisation of naïve realism and radical relativism. A number of authors nowadays attempt to negotiate the sharp divide between the two views and an evidence-based approach sits within such positions. However, Hammersley pointed out that evidence-based approaches still do not have a device to remedy this situation and hence justify use of this procedure. Thus, this research enacts a contextual inquiry by taking an evidence-based approach based on a neorealist ontology. This section is divided into three in order to explore more detail about evidence-based approach in terms of qualitative inquiry such as what are 'evidence' (5.3.1), 'synthesis' (5.3.2) and the process of evidence-based approach (5.3.3).

5.3.1 What counts as 'evidence' in qualitative research within an evidence-based approach?

The etymology of the word evidence is entrenched to the concept of experience, relating to what is manifest and obvious, apparent to sight (Upshur, 2001). That is why numerical data can provide strong evidence. In terms of a qualitative approach to evidence, evidence has central standing as a key concept in the field of law. Legal definitions of evidence emphasise its probative function. For example, evidence includes witnesses, documents, concrete objects which can be used to convince in a court.

In the area of action research, Whitehead (2004) developed the discussion of evidence and distinguished between data and evidence in order to generate evidence from the data which the action researcher collected from their experience. Whitehead (2004, p.872) stated: "I make a clear distinction between data and evidence. I am thinking of data as the information that is collected during an enquiry. I am thinking of evidence as the data that is used to support or refute a belief, assertion, hypothesis, or claim to knowledge". In the other words, generating evidence is about "establishing the validity, or truth value, of a claim" (McNiff

& Whitehead, 2006, p.148).

In this evidence-based research, considering those conceptual discussions in law and action research, the term evidence is used at two levels: the first kind of evidence is a particular selection of case study data to demonstrate validity in each case and the second kind of evidence is an analysis in order to explore research questions and make a claim to the knowledge. Thus, for the first step, the evidence will be generated in each case and then, that evidence needs to be analysed in light of the research question. Further detail about the evidence in this research (how to select data, presenting case study evidence, and the method of analysis) will be presented in Chapter 8.

5.3.2 What is synthesis in qualitative research within an evidence-based approach?

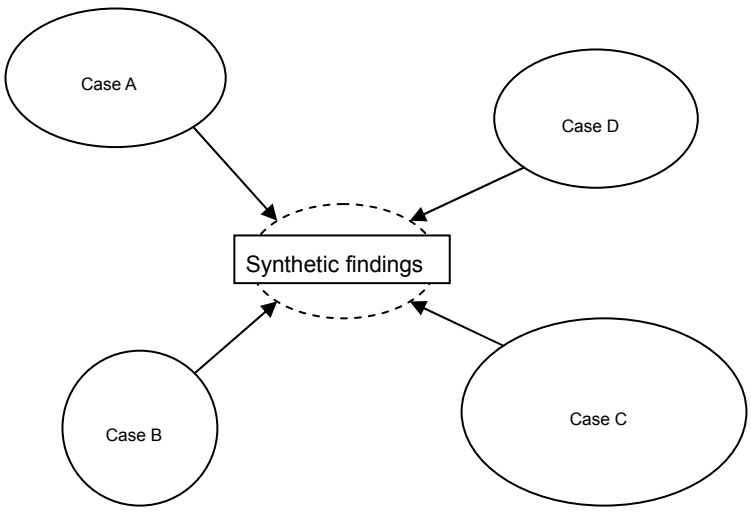
The word 'synthesis' has an attractive ring to it and there is a tendency that many researchers use the concept without critical examination. Taking these favourable attitudes towards 'synthesis', Hammersley (2002) critically analysed the interpretation of the term in a wider context. According to him, different types of synthesis can be distinguished as follows:

1. as aggregation or pooling—"investigating a different sample of cases drawn from the same population, and what 'synthesis' implies is that these various samples are combined to make a much bigger sample of that population";
2. as replication—"replication requires only quite a small number of studies, but these must be well conducted and they must all either support or reject the hypothesis if any definite conclusion is to be reached";

3. as the comparative analysis—"the comparative analysis of existing studies with a view to the systematic development and testing of hypotheses";
4. as the metaphor of a mosaic or map—"putting together different studies means looking at how they can be combined to give us a bigger picture"; and
5. as meta-ethnography—it "is similar to what some traditional reviews have done, and it contrasts with what is usually meant by 'synthesis' in the context of systematic review". (Hammersley, 2002, pp.2-4)

In evidence-based approaches, the word synthesis is most usually interpreted as 'aggregation' or 'replication', in order to build more robust research evidence toward policy-making and practice improvement. The focus of this research is not to gather vast amounts of empirical data with aggregation as the synthesis, rather it is to gather in-depth findings and approach synthesis as replication. In particular, each case in this study was selected as an example that belonged to the framework set out in the literature review, in Chapters 2 and 3. The aim of this selection is to build 'replication' (Hammersley, 2002) of examples effective environmental education, as illustrated in the following figure (Figure 5.3)

Figure 5.3: Image of replication of effective environmental education



5.3.3 What is the process of an evidence-based approach in qualitative research?

In general, the process of a conventional evidence-based approach normally involves collecting a huge amount of data, analysing it, and then synthesising findings. D. Gough (2004, pp.54-55) described common basic stages for an evidence-based approach to a systematic review of research (Box 5.2).

Box 5.2: Stages of a systematic review (D. Gough, 2004, pp.54-55)

1. **Research Question**

"As with primary research, it is necessary to have a research question…."

2. **Conceptual Framework**

"The research question is bound to contain some sort of theoretical or ideological assumption that needs to be clarified…."

3. **Review Protocol**

"…there is a need for an explicit methodology (or protocol) for the review to be developed… For some, this methodology needs to be fully stated before undertaking the systematic review in order to minimize bias from a data-driven review….For others, a more iterative approach is considered necessary."

4. **Inclusion criteria**

"Part of the protocol for the review needs to specify what counts as data for the review – in other words, criteria to decide which studies should be included in the review."

5. **Search strategy**

"The protocol also needs to specify the detail of the strategy to search for research studies that meet the inclusion criteria…"

6. **Data extraction**

"Some method is necessary to pull out relevant data for synthesis such as the findings of the study. In addition, some form of process may be necessary to make judgements about quality or relevance in order to quality the results of a study…"

7. **Synthesis**

"The synthesis is the process by which the result are brought together in order to answer the question posed by the review. The method of synthesis will vary considerably between statistical meta-analysis, systematic narrative empirical and conceptual synthesis, but will always be dependent on the conceptual framework of the review…"

Taking these basic steps of systematic review into account, and also considering the

discussion of qualitative research so far, this research offers a tentative methodology of carrying out a 'systematic' case study. It is systematic in the way of selecting and extracting cases from conceptual framework that was discussed in the literature review.

Stage 1 Research Question

Stage 2 Conceptual Framework (literature review)

Stage 3 Selecting Cases

Stage 4 Collecting evidence

Stage 5 Data presentation

Stage 6 Data analysis

Stage 7 Synthesis

This procedure of following the different stages is not an entirely new invention for conducting and reporting on research. However, here the emphasis is evidence-based: how to collect evidence and how to synthesis it.

Research Questions (Stage 1)

This research is about operationalisation of theory into practice in environmental education and examines how theory informs practice in environmental education (RQ1) and how theory can improve practice in environmental education (RQ2).

Conceptual Framework (Stage 2)

In relation to the environmental education theories, the absolute and the plural approach to environmental education theories can be analysed in relation to freedom (Chapter 1). It also conceptualised analytical framework of effectiveness in relation to RQ2 (Chapter 2) and reviewed possible ideologies and perspectives of context and changes (Chapter 3).

Strategy of Selecting Cases (Stage 3)

Compared to the basic evidence-based approach or systematic reviews, the feature of this research is to employ qualitative study; i.e. case study. The methodology of case study is discussed in Chapter 6. Also, the strategy is being addressed in the same chapter (Chapter 6).

Strategy of Collecting Evidence (Stage 4)

The view of concept of evidence was already discussed in this section (5.3.1). The strategy of collecting evidence i.e. case study methods will be addressed in Chapter 6. The actual procedure and reflection will be put forward in Chapter 7.

Data Presentation (Stage 5)

In Chapter 8 it will set out the methods of case study reporting. Then the reports of four case study site will be followed from Chapter 9 to Chapter 12.

Data Analysis (Stage 6)

Also the strategy of data analysis will be discussed before the analysis (Chapter 8). The analysis will be presented in Chapter 13 and Chapter 14. In this analysis, particularly the comparison of case study will be employed for synthesising four case studies in the later chapter.

Synthesis (Stage 7)

In Chapter 15, analysis of four case study site will be put together and discussed. In this process, it focused on exploring research questions.

5.4 Summary of the Chapter

This chapter has discussed the ontological and epistemological views relevant to this research and subsequently, the quantitative and qualitative paradigms of the evidence-based approach. The evidence-based approach is perceived as a neo-realist ontological view and thus the methodology tends towards a post-positivistic view. In this thesis however, an attempt is made to investigate and provide an in-depth description of theory into practice in environmental education, and the methodology needs to be within the qualitative and interpretive paradigm. This research employs a case study methodology in order to investigate each site. The next chapter describes the details of the case study methodology.

Chapter 6

Case Study Methodology and Case Study Design

The previous chapter concluded there is a need for qualitative paradigm within the evidence-based approach. The interpretive qualitative research approach, according to Creswell (2007), can be distinguished as five approaches: narrative research (e.g. Clandinin, et al., 2000; Czarniawska, 2004), phenomenology (e.g. Moustakes, 1994; van Manen, 1990), grounded theory (e.g. Charmaz, 2006; Strauss & Corbin, 2008), ethnography (e.g. Hammersley & Atkinson, 2007; Schensul et al., 1999; Wolcott, 2008) and case study (e.g. Stake, 1995; Yin, 2003). All five qualitative approaches have common research and data collection processes; however their foci are different in terms of: the unit of analysis (e.g. narrative research, ethnography and case study have a focused unit of analysis), the scope (e.g. ethnography is focused on culture, phenomenology is focused on phenomenon, narrative has an emphasis on inquiring individual stories in chronological order), and analysis (e.g. grounded theory has specific way of analysing) (Creswell, 2007, pp.76-77). Among these approaches, this research focuses on case study as an in-depth study of a bounded system of cases which involve environmental education theories and practices.

This chapter consists of two parts: considerations of case study methodology (6.1) and the case study design in this research (6.2). The first part (6.1) is going to be an explorative discussion in order to make a decision on the actual case study design in the second part (6.2).

6.1 Considerations on Case Study Methodology

Case study and case are widely but confusingly used terms in social science and education

research. For example, Merriam (1998) mentioned that case study is often interpreted as a 'catch-all' term referring to any form of research that is not related to a survey or experiment. Yet, the case study is a common methodology adopted in education research and environmental education research in order to understand, illustrate or evaluate practice. This section (6.1) clarifies what is meant by case study methodology and examines the data collection methods used in this research. Firstly, it gives a review and discusses methodological paradigm for case study (6.1.1), and then, presents case study design (6.1.2). Lastly it considers validity and reliability (6.1.3).

6.1.1 Methodological paradigm of case study methodology

A number of writers described the principle of the case study as the possibility of achieving a deep and holistic understanding of the complexity found in particular cases (e.g. Yin, 1994; Stake, 1995; Bassey, 1999; Silverman, 2001; Bryman, 2004). Possibly the clearest statement of the advantages of the case study in education research is the frequently referenced Adelman et al.'s (1980) description given in their book "Towards a science of the singular" (Box 6.1).

Box 6.1: Advantages of the case study (Adelman et al., 1980, pp. 59-60)

(a) Case study data, paradoxically, is 'strong in reality' but difficult to organise. In contrast, other research data is often 'weak in reality' but susceptible to ready organisation. This strength in reality is because case studies are down-to-earth and attention holding, in harmony with the reader's own experience, and thus provide a 'natural' basis for generalisation….

(b) Case studies allow generalisations either about an instance or from an instance to a class. Their peculiar strength lies in their attention to the subtlety and complexity of the case in its own right.

(c) Case studies recognise the complexity and 'embeddedness' of social truths. By carefully attending to social situations, case studies can represent something of the discrepancies or conflicts between viewpoints held by participants. The best case studies are capable of offering some support to alternative interpretations.

(d) Case studies, considered as products, may form an archive of descriptive material sufficiently rich to admit subsequent reinterpretation. Given the variety and complexity of educational purposes and environments, there is an obvious value in having a data source for researchers and users whose purposes may be different from our own.

(e) Case studies are 'a step to action'. They begin in a world of action and contribute to it. Their insights may be directly interpreted and put to use; for staff or individual self-development, for within-institutional feedback; for formative evaluation; and in educational policy making.

(f) Case studies present research or evaluation data in a more publicly accessible form than other kinds of research report, although this virtue is to some extent bought at the expense of their length….The case study is capable of serving multiple audiences. It reduces the dependence of the reader upon unstated implicit assumptions (which necessarily underlie any type of research) and makes the research process itself accessible. Case studies, therefore, may contribute towards the 'democratisation' of decision-making (and knowledge itself)…. (Adelman et al., 1980, pp.59-60)

Most of the points articulate the potential of case study methodology. However, while point (e) might be true in principle only a few case studies is successful in this respect, particularly in environmental education research. Corcoran, Walker and Wals (2004) were concerned that case study research (in sustainability in higher education) often has not lived up to its potential for improving practice. Analysing 54 journal articles on sustainability in higher education, they summarised the discussion as (Corcoran, Walker & Wals, 2004, p. 14):

> "The case studies rarely included any information on the theoretical approach to the methodology or on the methods used gather the data. Instead, stories of successes were reported and the data supporting these successes are not readily available for public critique."

Dillon and Reid (2004) agreed on this point and criticised Stake's (2000, p.236) view of case study which is "not a methodological choice but a choice of subject to be studied". That is to say, according to Stake (2002), the focus of the case study is some "thing" in a bounded context such as an event, a situation, a setting, a problem, an issue, a theory, a model, a unit, and an entity; however, Dillon and Reid argued that the theoretical assumptions and positions underpinning in the case study need to be carefully discussed rather than the subjects to be studied. As a starting point, the following table is useful for discussing the possible theoretical bases of case studies, as it summarises the types of case studies as described by a number of authors (Table 6.2).

Table 6.1: Types of case studies

Bassey (1999)	• Theory-seeking and theory-testing—particular studies of general issues; • Story-telling and picture drawing—analytical account of educational events, projects, programmes or systems aimed at illuminating theory; • Evaluative—in order to focus on its worthwhileness.
Merriam (1988)	• Descriptive—narrative accounts; • Interpretative—in order to develop conceptual categories; inductively in order to examine initial assumptions; • Evaluative—in order to explain and judge.
Merriam (1998)	• Particularistic—to focus on a special event, situation or programme; • Descriptive—inclusion of many varieties and analysis; • Heuristic—to enhance the reader's understanding of a phenomenon.
Stake (1995, 2000)	• Intrinsic case study—in order to understand a particular case in question; • Instrumental case study—in order to provide insight into an issue and refinement of theory; • Collective case study—in order to gain a full picture.
Stenhouse (1985) Sturman (1999)	• Ethnographic case study—in order to provide single in-depth study; • Action research case study • Evaluative case study • Educational case study
Yin (1994)	• Exploratory—as a pilot study to other studies or research questions; • Explanatory—in order to provide narrative accounts; • Descriptive—in order to test theories.

In light of these categories, it is possible to say that because the research for this thesis seeks the instrumental research utilisation model (see Chapter 4), this research concerns evaluative (in the categories of Bassey, 1999; Merriam, 1988; Stenhouse, 1985) and instrumental (Stake 1994) forms of case study. Notwithstanding this, these categories are not really useful for generating the theoretical assumptions of a case study since the categorisations are given by different factors such as: the purpose of case study, the number of cases, the style of reporting, and so on. For example, in Stake's (1995, 2000) classification, intrinsic and collective case study are distinguished on the basis of the singularity or plurality of case studies, and instrumental on the purpose of the case study, i.e. refinement of theory. This arbitrary tendency in categorisation can be found in other authors

in Table 6.2, suggesting that one of the reasons for confusion in the conceptualisation of case study methodology is that these categorisations lack rigorous consistency. Thus we may need to consider separately: the purpose of case study, the number of cases and the style of reporting.

Case study methodology may be better conceptualised in light of ontological and epistemological issues and in this research, these issues have been already discussed in Chapter 5. Moreover, Bassey (1999) examined the positivist, interpretive and realist paradigms in case study methodology. Positivist and interpretive paradigms accord respectively to naïve realist and radical relativist ontology which have discussed earlier, thus Bassey also argues to soften the sharp divide between these paradigms in research in educational settings by making the bold statement: "the public world is positivist; the private world is interpretive" (Bassey, 1999, p.44), thus we may need to seek a realist paradigm between these extremes.

Also in environmental education research, Stevenson (2004) has argued for different paradigms of case study methodology in the field; namely, positivistic/post-positivistic, interpretive/naturalistic and critical/emancipatory and suggests that the understanding of and the clarification of paradigms in case study research helps readers to make connections and understand the case study. In his categorisation, Yin (1994) took rather a positivistic/post-positivistic view of the case study; whereas Stake (1995) tended to be more interpretative and naturalistic.

Interestingly, the forms that Stevenson clarified as paradigms in case study research are parallel to the research paradigms which were described by Robottom and Hart (1993) in the past in environmental education research, that is to say: positivist, interpretivist/liberal,

and socially-critical. Of these three methodologies, they claimed that socially-critical is strongly aware of the ideology behind each study as its ideology or 'political theory' identifies the methodological assumptions that "undergird and prefigure what is to count as appropriate research including what are the appropriate topics, questions, methods, and even outcomes" (Robottom & Hart, 1993, p.13). Those academics who take a socially-critical view criticised the ideologies behind other methodologies, i.e. the positivist, underpinned by right-wing scientific or technocentric ideology and the liberal/interpretivist, based on ecocentric conservatism. Particularly, Robottom and Hart (1995) criticised behaviourist environmental education research on the grounds that it can be scientific, objectivist, instrumentalist, and behaviourist in nature.

This view of research paradigms was also disputed by Connell (1997, reprinted in 2006) in the past, regarding their criticism of the positivist/post-positivist research paradigm in environmental education. Connell (1997) argued that the criticisms of empirical-analytical methodology were unjustified at that time. This argument came from the trend at the time that methodological discussion tended to be antagonistic, derogatory and had an attitude of rubbishing the oppositions' methodology. However as discussed in Chapter 5, more recent methodological discussions in education and environmental education are more constructive, pacificatory and pragmatic, although distinctive differences in specific methodological paradigms are still acknowledged.

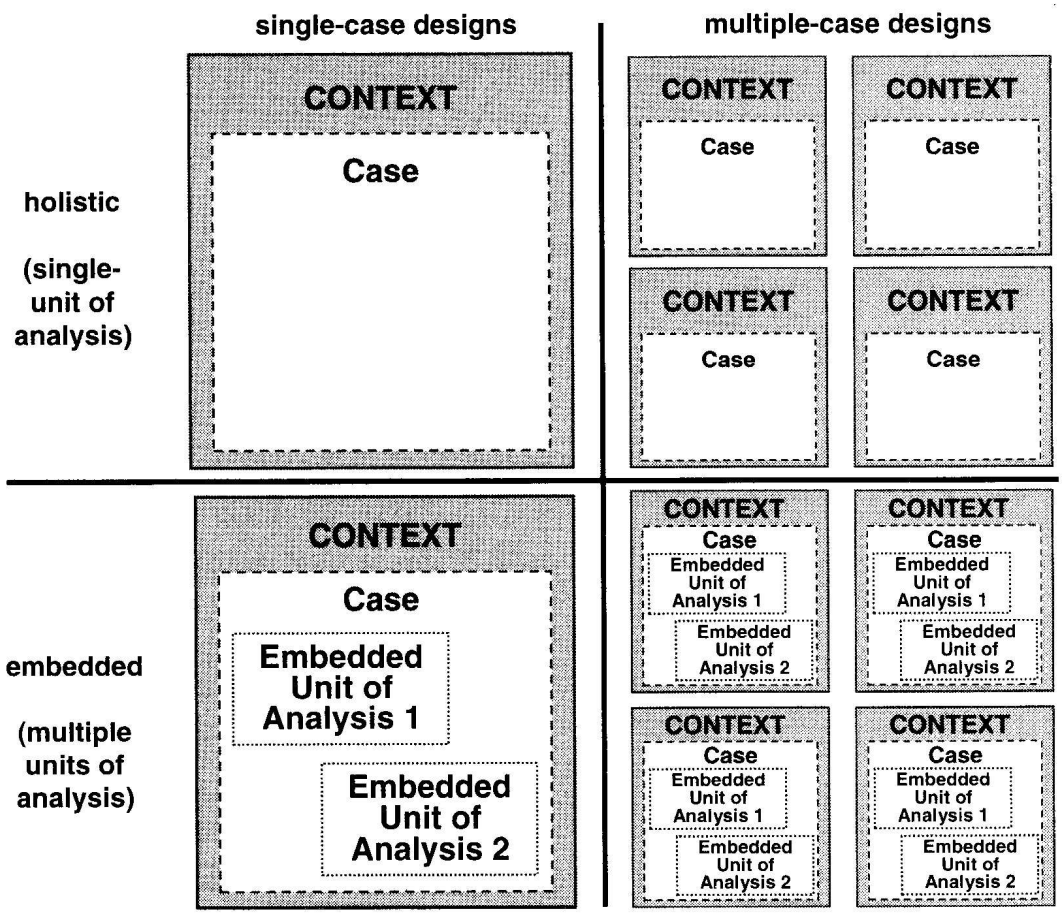
To summarise, the methodological paradigm in the case study in this research stands in relation to Bassey (1999) who attempted to explore between positivist and interpretivist paradigm. Also it draws on Yin's (2003) post-positivistic strategy of case study which is consistent with the ontological and epistemological view of the evidence-based approach which gives the overarching essence of case studies.

6.1.2 Case study design: single case study or multiple case studies?

In reviewing Corcoran et al.'s (2004) paper and critically discussing the interpretive view of Stake's case study methodology, Dillon and Reid (2004, p.28) posed an interesting question: "is there anything particularly special about only studying one case?" This question echoes with the problems in education research which Pring (2000) illuminated (See Chapter 4), one being the critique of the fragmentation of education research. Indeed, this is a fundamental reason that this research takes a form of evidence-based approach.

Also in the case study context, in recent years, a pure single case study might have depreciated in value, because of the rise in expectations for systematic reviews. Yin (2003) introduced four types of case study design in a matrix (Figure 6.1), and asserted that multiple case studies are more prevalent nowadays. Also, Miles and Huberman (1994, p.26) have suggested that multiple case studies can offer "even deeper understanding of process and outcome of cases, the chance to test (not just develop hypotheses), and a good picture of locally grounded theory".

Figure 6.1: Basic types of designs for case studies (Yin, 2003, p.40 – Figure 2.4)



According to Yin (2003, pp.45-6), single cases can be used for the reasons of: (a) critical testing of existing theory, (b) investigating rare or unique case circumstances, (c) examining a representative or typical case, (d) following a revelatory or longitudinal inquiry; on the other hand, multiple case studies aim at a replication and Yin (2003) classified two types of replication: (a) predicting a similar result, i.e. a literal replication, and (b) predicting contrasting results but for predictable reasons, i.e. a theoretical replication. For both kinds, Yin (2003) remarked that a researcher needs to choose cases carefully for the purposes of replication. In light of this categorisation, this research must be one that involves multiple case studies since it aims to contribute toward policy and practice by making synthetic findings accumulated by systematically organised multiple cases. In order to accumulate

systematically organised cases, the method of selecting cases is a key issue.

Patton's (2002) classification of purposeful sampling is helpful and has the most variation of sampling strategy. Although this classification was about 'sampling' in both quantitative and qualitative research, rather than about selecting 'cases', it may be reasonably applied here.

Box 6.2: Types of sampling (Patton, 2002, pp.230-242)

1. Extreme or deviant case sampling: to provide a rich information of unusual, special outstanding success or notable failure;
2. Intensity sampling: the same extreme sampling as type 1 but with less emphasis on extremes;
3. Maximum variation (heterogeneity) sampling: to capture and describe the central themes that cut across a great deal of variation;
4. Homogeneous sampling: in contrast to type 3 sampling, this is to describe some particular subgroup in depth;
5. Typical case sampling: to describe a culture or programme to people not familiar with the setting studied;
6. Critical case sampling: to make a point dramatically to state that "If it happens there, it will happen anywhere";
7. Snowball or chain sampling: an approach for locating key informants;
8. Criterion sampling: to review and study all cases that meet some predetermined criterion;
9. Theory-based sampling, operational construct sampling, and theoretical sampling: to sample incidents, slice of life, time periods, or people on the basis of their potential manifestation or representation of important theoretical constructs;
10. Confirming and disconfirming cases: to test ideas, confirm the importance and meaning of possible patterns, and check out the viability of the emergent findings;
11. Stratified purposeful sampling: to stratify and nest by combining types;
12. Opportunistic or emergent sampling: to take advantage of unforeseen opportunities after fieldwork;
13. Purposeful random sampling: random sampling is partly used to enhance credibility of research.
14. Sampling politically important cases: to select politically sensitive site or unit of analysis.
15. Convenience sampling: the ideas of fast and convenience are varied on research, though this is probably most common sampling strategy.

These types of sampling may not be mutually exclusive and some strategies can be

overlapped. This research takes an evidence-based approach, and particularly employs 'replication' of cases which has already mentioned in the previous chapter (Chapter 4). For this perspective, Shadish et al.'s (1991) notion of 'heterogeneous replication' might be helpful. It is focused on generating findings based on heterogeneous clusters of studies in order to make generalisable and transferable knowledge. Thus this research aims at a heterogeneous replication of different environmental education cases selected on the grounds of different ideologies and different perspective of contexts and changes. The use of maximum variation (heterogeneity) in case study selection is based on theoretical framework which has already been discussed in Chapters 1, 2, and 3.

6.1.3 Validity and reliability: achieving rigor in case study methodology

The concepts of validity and reliability derive from quantitative research, however, they also have become recognised in qualitative research in recent years. In quantitative research, reliability refers to reproducibility, precision and falsifiability, whereas validity denotes objectivity, truthfulness and accuracy. Many qualitative researchers attempt to interpret validity and reliability as consistency, truthfulness, accuracy, rigor, transparency and so on. A few qualitative researchers still contest these terms, on the grounds that they are based on a positivistic view of research.

In case study methodology, the issue of validity and reliability is significant as the case study attempts to be a flexible methodology. In fact, case study methodology has often been denigrated because of its lack of precision, rigor, and objectivity (Yin, 2003). In environmental education research, this issue of rigor in using case studies was discussed by Kyburz-Graber (2004) drawing on the following suggestions from Yin. In order to increase validity and reliability, Yin (2003) has advised three principles: using multiple sources of evidence, i.e. triangulation; creating a case study database; and maintaining a chain of

evidence. This research adopts these principles to enhance its validity and reliability.

Principle 1: Use multiple sources of evidence: Triangulation

The term 'triangulation' originates from an analogy with navigation and surveying: in order to locate a place on a map, two landmarks are used to identify the exact position (Hammersley & Atkinson, 2007). With using multiple data sources, triangulation can be used in order to avoid the researcher being mislead which can be caused by relying on only one data source. In this research, data sources are varied and include documents, many interviews in the same organisation, and observations.

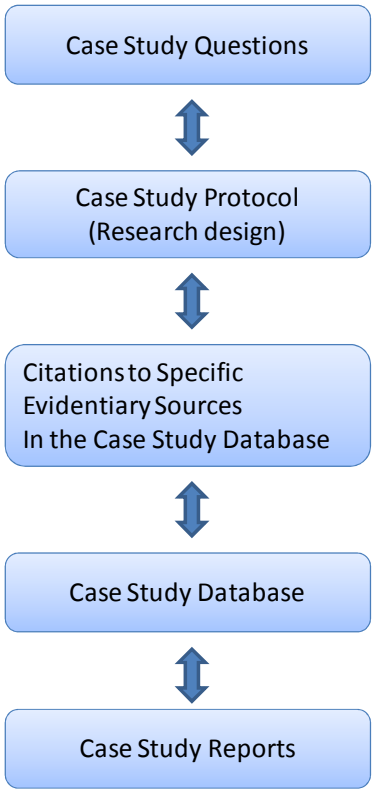
Principle 2: Create a case study database

Yin (2003) recommended creating a database for the purposes of organising and documenting the data collected for the case studies. Taking this useful advice, this research created an electronic database using software.

Principle 3: Maintain a chain of evidence

Maintaining a chain of evidence denotes maintaining consistency throughout the case study research (Figure 6.2). The purpose of this is "to allow an external observer—in this situation, the reader of the case study—to follow the derivation of any evidence, ranging from initial research questions to ultimate case study conclusions" (Yin, 2003, p.105).

Figure 6.2: Maintaining a chain of evidence (adopted from Yin, 2003, p.106 – Figure 4.3)



First of all, case study questions and case study protocol (research design) need to be linked in terms of the specific procedure and interview questions. Secondly, the research design should be consistent with the circumstances in which evidence was collected. Thirdly the actual evidence is put into database with maintaining the categorised citations (e.g. theory-relevant themes and so on). Lastly the case study report needs to have sufficient citation from the case study database. The reliability of the process from data collection to reporting and analysis will be assured by the transparency of the chain of evidence.

Just to note that 'case study questions', according to Yin (2003, p. 69), denotes "the specific questions that the case study investigator must keep in mind in collecting data, 'table shells' for specific arrays of data, and the potential sources of information for answering each question". Here it should be noted that case study questions and research questions are

distinguished: case study questions are specific to data collection; on the other hand, research questions are to draw conclusion in the entire research (See Box 6.3). Yin (2003) also suggested that there is a need to maintain the level of questions that might occur in research:

Box 6.3: Level of questions (Yin, 2003, p.74)

Level 1: questions asked specific interviewees;
Level 2: questions asked of the individual case (these are the questions in the case study protocol to be answered by the investigator during a single case, even when the single case is part of a larger, multiple-case study);
Level 3: questions asked of the pattern of findings across multiple cases;
Level 4: questions asked of entire study—for example, calling on information beyond the case study evidence and including other literature or published data that may have been reviewed;
Level 5: normative questions about policy recommendations and conclusions, go beyond the narrow scope of the study.

As seen in the box, according to Yin (2003), case study questions are Level 2 questions and research questions are Level 4 questions.

To sum up, the case studies in this research sought to include those three principles as Yin (2003) suggested above. The first principle will be addressed in the next chapter (Chapter 7) and the second principle about creating case study database will be explored together with analysis in Chapter 8.

6.2 Case Study Design in this Research

This section addresses research design in this research considering the discussion above. Firstly it provides an overview of the case studies (6.2.1). Then, it presents the case studies questions in this research (6.2.2). This is followed with the data collection methods (6.2.3).

6.2.1 An overview of the case studies: the case under the investigation

The case under the investigation in this research is theory into practice in environmental education in each organisation. The research questions (Level 4 question in Yin's description) are that how theory informs practice in environmental education (RQ1) and how theory can improve practice in environmental education (RQ2). In the literature review, environmental education theories are reviewed based on different ideologies and the perspective of the context. In this multiple-case-study research, four case study sites are selected on the basis of theoretical framework in the literature review in order to incorporate different ideologies and different perspective of contexts. Thus the case study inquiry has two objectives: to examine the degree of theoretical fitness to theoretical framework; and to investigate what kind of practices are undertaking in each case study site.

6.2.2 Case study questions

Case study questions are significant for conducting multiple case studies as they are the over arching questions applied to all case studies (See Yin's different level of questions in Box 6.2 in Section 6.1.3). They provide the common focus for data collection throughout the four case study sites. Case study questions are formulated from the first research question: how theory informs practice in environmental education (RQ1). Thus, research questions are formulated into more detail case study questions as seen below:

1. What are the aims of the organisation in each case?
2. What knowledge does each organisation have?
3. What educational practices (learning) are employed in each case?
4. Is the practice in each case effective in terms of:

   [a] the objectives of the case study organisations

   [b] its contribution to sustainable development (international policy initiatives)

The evidence of theory and practice in each organisation are collected separately by several case study questions; however, this evidence will be analysed together in order to address the research question of 'theory into practice' and its effectiveness (RQ2: how theory can improve practice in environmental education). For that, the method of analysis will be described in Chapter 8, i.e. hybrid approach of theory-led and data-led thematic analysis.

6.2.3 Data collection methods

Yin (2003) introduced six kinds of common sources of evidence in case study: documentation, archival records, interviews, direct observations, participant observations, and physical artefacts. Considering the accessibility and appropriateness in the case studies in this research, evidence can be collected from the following sources: documents, interviews and observations. These multiple data sources allow the researcher to address embedded historical and cultural issues.

Data Source One: Document searches

Document analysis is focused on knowing the history and background of each organisation, its organisational aims and goals, documentation of practice. Most documents were pre-analysed (main analysis will be addressed in Chapter 8) before commencing the field work. The following searches were carried out:

- Focused searches: A request was sent to each organisation by email or letter in order to ask for related literature, documents, and other information sources. Also during the interviews with staff, the researcher asked again for any relevant information sources.

- Website searches: Each organisational website was thoroughly searched for documents and related websites were also selected and searched.
- Book searches: available online databases (e.g. search engines such as Google and Yahoo, and also online book shops such as Amazon) were searched for published books.

Data Source Two: Formal semi-structured interviews

This research chose semi-structured interviews as its interviewing method since this can provide a degree of "cross case comparability" (Bryman, 2004, p.324) and flexibility across different case study sites. In each case study site, formal semi-structured interviews were conducted with the leader, staff and participants in each organisation. Because of different types of information they carried, the interview schedule was designed for two groups of people, namely organisational insider (director, staff, etc) and outsider (participants etc.). Both types of interviews were semi-structured interview.

The interview schedule was designed under sub headings. This is to maintain the flexibility according to the particular circumstances of the different organisations. The first sub headings about general information and background were thought necessary to write up the report and also make rapport with interviewees. The rest of sub headings were generally derived from case study questions. The time of interview duration was designed as about 40 minutes for interviews-by-appointment to the staff in each organisation, and about 15 to 20 minutes for spontaneous interviews[9] to the participants in each organisation. The details of interview schedule are shown below (Box 6.4 and Box 6.5). The interview-by-appointment was recorded by a digital voice recorder under each interviewee's permission. Some of the spontaneous interviews was recorded under each interviewee's permission; however, others

[9] In this research, spontaneous interview means interview without a strict appointment.

were not recorded but take as field notes because of its convenience. For all the interviews (including the interview-by-appointment and spontaneous interviews), interviewees were informed about the case study and the research and the anonymity was discussed with each interviewee.

Box 6.4: Interview schedule for leaders and staff in the organisation (about 40 minutes to one hour)

1. General Information and background

How many staff do you have? (Full time or Part time? What is the position of each staff?)

How many offices do you have? (Do you have any branches in other places?)

When was this organisation established? (How was it established?)

What is the financial source of the organisation? (How did you get funding? How do you run the organisation?)

2. Aim and objective of organisation

What is the aim of organisation?

What does it (e.g. sustainability) for you or for the organisation?

Has the aim changed over the time?

How do you try to achieve?

How much do you think you achieved?

Is there particular strategy in your organisation? (What is the strategy of your organisation?)

3. Project or Programme

What is your current educational programme?

How many projects or programme have you done?

How successful do you think it is?

Is there any successful example?

What is the challenge?

4. Organisational knowledge

What is the influential idea in this organisation?

Who is the (ideologically) influential person in this organisation?

How did it come across?

What kinds of books or ideas were inspiring in recent years?

What influence the knowledge in this organisation?

How did it change over the time?

5. Participants

How many participants in the organisation / programme / project so far?

How did they participate? (How did they come across this organisation / programme / project?)

How do you recruit the participant?

What is the feedback from the participants?

Were there any challenges in engaging with participants?

6. Challenge and future plan

What is the major challenge facing in this organisation? (Why?)

What is the future plan in the organisation? (Why?)

Box 6.5: Interview schedule for the participants (about 15 minutes to one hour):

1. General Information and background

Where are you from?

What is your occupation?

Would you mind asking how old you are? (when it is appropriate to ask)

2. Reason for participation

Why did you choose this organisation / programme / project?

How did you know about the organisation?

How did you know about the teacher?

3. Learning process

What is your programme you are participating?

What is your typical day in the school?

What did you learn so far?

What is the current project?

What do you think about teachers?

What do you think about co-participants?

Have you learned what you expected?

What are the difficulties in learning?

4. Feedback

What do you think about learning in this organisation / programme / project?

What did you achieve?

What do you do after leaving this organisation (or finishing this programme / project)?

Do you have any suggestion for improving this organisation / programme / project?

The general objectives of the interview were to explore the issues that had emerged from document analysis, to validate the findings from document analysis and to complement these with new information. Each organisation is unique, so the interview questions were varied slightly, but the principle of the questions had been derived from the case study questions.

Data Source Three: Observations and natural conversations

Observations were conducted with participants in each organisation and also natural

conversations occurred during the fieldwork. The main aim of collecting these data was to complement and validate document analysis and the formal semi-structured interviews. The observations included:

- Direct observation: focused on physical artefacts (e.g. building and space) and learning (e.g. interaction between teachers and participants, also among participants);
- Participant observation: focused on physical artefacts (e.g. building and space) and learning (e.g. interaction between teacher and participants, also among participants);
- Online observation: focused on learning and information exchange (e.g. online conferences and discussion in emailing lists).

The method of observation might be weak data source by itself (e.g. the researcher can see or describe what is happening but cannot specify why it is happening or why someone is doing what they are); however, these observations in this research are used as a minor source in order to triangulate with the other data source.

The natural conversations occurring during the field work were seldom counted as the case study evidence. However, when the researcher engaged in the natural conversation which relates to the case study questions, the field notes were taken at that moment, and then in order to verify the evidence, the researcher attempted to make an appointment with the person and interview her/him with the informed consent.

6.3 Summary of the Chapter

This chapter discussed case study methodology and research design. It reviewed methodological paradigm of case study and the research takes post-positivistic paradigm of case study and also designs multiple case studies. Also in order to achieve rigor in case

study, it considers three principles Yin (2003) suggested. In research design, overview of case study was described and case study questions were set out. According to case study questions, the data collection methods were designed.

Chapter 7

Case Study Implementation

This chapter addresses reflection and examination of the data collection process in the case studies. Firstly, the account of the selection of the cases is presented (7.1). Secondly, implementation of the fieldwork is reported in terms of what, how and when this researcher collected the data (7.2) (The details of the geographical information about Japan is in Appendix1). Thirdly, the ethical issues involved in the field work is discussed (7.3). Fourthly, the experience is related in terms of the researcher's identity (7.4) and conceptualised as what it has meant to be a "halfie researcher" (Abu-Lughod 1991) in environmental education research (7.5). Then, the triangulation of each data sources is evaluated (7.6). Following this, triangulation of each case study is overviewed and evaluated (7.7).

7.1 Selection of the Cases

The process of selecting cases has been implemented according to the case study design (See Section 6.1.2). That is, the research aims at a heterogeneous replication of different environmental education cases selected on the grounds of different ideologies and different perspectives of contexts and changes. The use of maximum variation (heterogeneity) in case study selection is based on theoretical framework which has already been discussed in Chapters 1, 2, and 3. Particularly Chapter 2 and Chapter 3 analysed the different ideological perspectives and the different views of contexts and changes. In order to examine the in-depth operationalisation of theories into practice, this research examines particular environmental education practices which were being implemented by the organisations. The selection of cases is distinguished by the possible variables of the ideologies and the

perspective of contexts. More specifically, the UK and Japan were selected for their contrasting contexts, their convenience for the researcher, but also because both countries have a long history of environmental education and are significantly different culturally when a comparison of their environmental education practices is made. The four cases were selected on the basis that embraced contrasting ideologies in each country (See Figure 3.3).

The actual procedure of case searching in this research employed a variety of ways such as searching literature and the Internet, examining personal experience, and getting advice through personal contacts. The initial decision was through pre-analysis in light of the organisations' theoretical perspective on the available literature. The availability of the organisations was also a crucial element for decision. Initially several organisations were selected and contacted successfully. In the end, the four cases were selected with the intention of heterogeneous replication of operationalisation of theory into practice in environmental education. The case study organisations in this research participated without any reward.

7.2 Procedure of the Fieldwork

A case study does not happen in a test tube; it involves many contextual factors. In particular, in this research the four case studies were not selected from within the same category of educational organisations, for example, to compare the practice in four elementary schools or four environmental NGOs. Instead, the focus of this research is more on the different conceptual underpinnings of educational organisations, and this resulted in different types of educational organisations, such as: environmental organisations, colleges, and companies, being considered for investigation. That is to say, the data collection circumstances are various depending on each case, though a chain of case study evidence is

maintained.

A second issue of concern in conducting the case studies relates to unexpected difficulties and obstacles. Any fieldwork may encounter these and it is nearly impossible to proceed without any problems such as: miscommunication, delay, and difficulties in making contact with the targeted organisations under the study. In addition, fieldwork always causes unexpected difficulties.

For the first step of the data collection, the four organisations were selected and contacted by the researcher. The following letter was sent to a key person in each organisation (See Box 7.1). They were kindly accepted to participate this research (The detail of the first contact in each organisation will follow later sections).

Box 7.1: The letter sent to the organisations

Dear [the name of the staff],

I am Junko Katayama, a MPhil/PhD student in Department of Education in University of Bath. I am engaged in the research about ideology and effectiveness in environmental education and am writing this letter in hope that you will be able to help for my research. XXXX introduced me your name and address and indicated that your work in [the organisation name] might be suitable for my case study.

My research is about exploring different ideological perspectives on effectiveness in environmental education. There are a variety of different positions in environmental education and I am particularly interested in the different view of environmental education.

In order to explore these issues deeply, I am going to carry out comparative case studies and examine them in the light of conceptions of effectiveness., Also, I am going to take similar cases in UK and Japan in order to take into account on cultural consideration on different ideology. Therefore as one of case studies in UK in my research, I would like to ask you if it is possible to take your time to cooperate with my research. For example, I would interview you, observe some of your activities and also might ask you to have access to some documents.

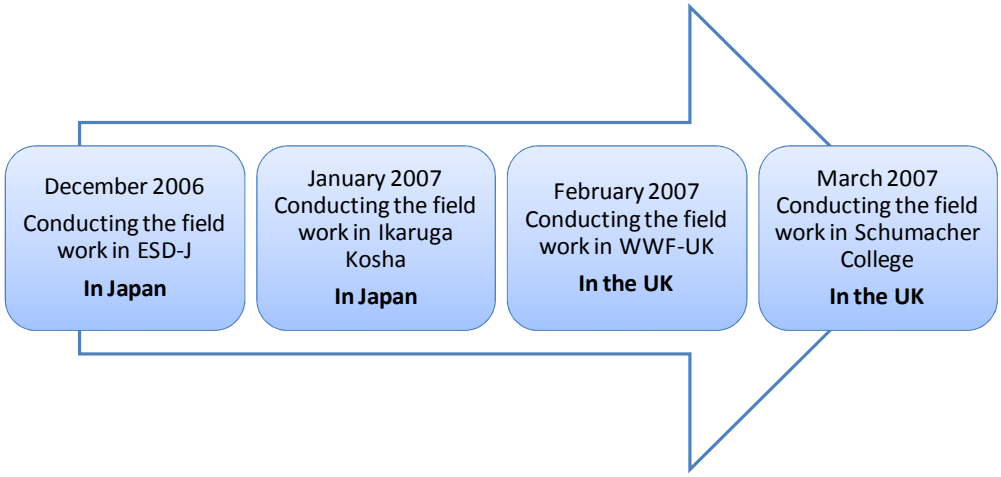
Thank you for your consideration, and I look forward to your reply. My email address is [xxxx] and my address is [xxxxx].

Sincerely,

For the second step, a number of institutions were selected and contacted as potential pilot studies in addition to the main four case studies. Yet, because of the amount of time and effort involved in volunteering to be a pilot case, not many organisations were willing to do this. As an alternative and instead of pilot studies, the researcher then decided to make close contacts in each main case study site and attempted to make sure of their cooperation in this research. Also the researcher discussed the details of the interview schedules with the supervisor and conducted a trial interview with the researcher's colleagues, which improved the interview questions and the researcher's confidence towards interviewing.

Originally the fieldwork was planned to carryout earlier in the spring of 2006 and so contact was made to each organisation at the time. However, owing to the issues raised about the theoretical framework in a transfer seminar, the fieldwork needed to be delayed. The temporal phases of the data collection were planed to take place between December 2006 and March 2007 in two countries, the UK and Japan, as shown in the following figure (Figure 7.1).

Figure 7.1: Overview of the plan of data collection



The researcher planned the data collection schedule in a linear way as illustrated in the figure above; however, a number of the condition was not allowed her to do so. In what follows, the detail of the data collection circumstances in four case study site is summarised.

7.2.1 Case study one: the WWF-UK Formal Education Team (London, the UK)

In 2006, the contact was made to the WWF-UK Formal Education Team by a formal letter, with the reference of Prof. William Scott in order to ask for participation in this research. The Head of the Formal Education Team in the WWF-UK replied and accepted the proposal about conducting this study. Later a meeting was arranged to explain the research in more detail, and to plan the schedule for carrying out the case study in the WWF-UK office in

London. Also, at the first meeting, literature and documents were introduced and given for pre-analysis to the researcher, before the interviews and observations commenced. The interviews with members of staff were conducted a few times in London and also in Bath. Observation of practice and the spontaneous interviews with participating teachers were undertaken in London. In total, the researcher spent three days carrying out interviews and two days undertaking observation. The interview sample comprised: the Head of the Formal Education Team, staff and teachers who participated in the WWF-UK's programme. The identities of those people who participated in WWF learning programmes are kept anonymous.

7.2.2 Case study two: The Japan Council on the UN Decade of Education for Sustainable Development (the ESD-J) (Tokyo, Japan)

The researcher has been a subscribing a member of the ESD-J since its foundation in 2003. Thus the literature and documents were obtained before the fieldwork and also the information in the organisation's emailing lists have been sent to the researcher regularly. However, apart from obtaining the published literature about the organisation, the researcher was not actively engaged in the organisation and had little knowledge about the inside people and situation. The first contact with one of the staff was made by email with the ESD-J following recommendation from Prof. John Fien, though there was some delay in receiving a reply, owing to her maternity leave. Through the administrative director, the study was approved and the interviews were arranged. In December 2006, the interviews with the Director, full time and part time members of staff were undertaken. Also, practice of members of the staff in workshops and seminars were observed in the same period. In addition, two local NGOs (one in Okayama and the other in Kyoto) who participated in the council's network were visited and observations and interviews were conducted. The researcher spent two days for interviewing and observing in the ESD-J and another two

days for interviewing and observing in local NGOs. The participants in the ESD-J and local NGOs remain anonymous.

7.2.3 Case study three: the Schumacher College (Dartington, the UK)

The first contact was made with Dr Stephen Sterling, one of the lecturers in the Schumacher College. Through the help of Dr Sterling, the participation by the college as a case study was agreed by the Assistant Director. Particularly, the circumstance of case study in the Schumacher College was recommended by him as a participation in one of their short courses in the college. Literature and website were available before the field study. The researcher planned to take part in one of the college's short courses in March 2007 at the College in Dartington; however, because that course was cancelled, the researcher needed to wait until the next available course until July 2007. In addition to the participant observation and interviews with the participants during the course, the interviews with staff were conducted. In total, the researcher stayed on site for five days to observe and conduct the interviews.

7.2.4 Case study four: Ikaruga Kousha (Tochigi, Japan)

Ikaruga Kousha is a construction company specialised in building wooden temple and shrine, which involves apprentice in order to raise professional carpenters. For the Ikaruga Kousha, initial contacts were made by letter for reasons of convenience. Though the researcher did not have any reference for contacting to the organisation, they kindly accepted the proposal about conducting the research. Published literature was pre-analysed before the field work stage. Also, a TV documentary programme was pre-analysed. The researcher observed the practice in the organisation for three days. During the stay, the interviews with master carpenter and the selected disciples were undertaken. Later,

following up a referral from the master carpenter, the researcher visited one of their clients, a temple priest and conducted an interview. In total, the researcher spent four days observing and interviewing on main workshop and relevant sites.

7.3 Ethical Issues in the Fieldwork

In principle, ethical issues in social science research concerns of directly and indirectly causing harm to the individuals who participated in the study (Robson 2002). Particularly in qualitative research, the individuals and organisations who participated to a study involves the context they are situated in, thus it is significant to address the ethical issue of their participation.

This research consulted the ethical issues in relation to education research by British Educational Research Association's guideline (Bera 2004). In terms of responsibility to participants, the guideline highlights the following points: voluntary informed consent; deception; right to withdraw; children, vulnerable young people and adult; incentives; detriment arising from participation in research; privacy; disclosure.

In this fieldwork, the all individuals and organisations participated voluntarily without any incentives in this research. Also they were informed of the research purpose and design. More specifically, the organisations were informed that this research involves analysis of effectiveness and comparing the cases in the UK and Japan (See Box 7.1 "the letter sent to each organisation" in the previous section). The written proposal of the research design was also brought to the staff to the organisation and explained in the first meeting. The researcher ensured the participation and cooperation of the organisations (the process of contacting to each case was explained in the section 7.2) and obtained the permission of

disclosure of the organisation's name since the organisational contexts are very important to this research to reporting the case.

The staff in the organisations who were interviewed by the researcher were informed of disclosure of the name, except Ogawa in Ikaruga Kousha. Since he was a key person for the organisation, the researcher asked permission for disclosing his name and he was kindly accepted. The interview was recorded by a digital voice recorder only under the permission of the staff. The most of the staff were happy to be recorded; however, during the interview, at the time one staff told the researcher that "this is confidential but…", the recording were promptly stopped. Thus such confidential information were not recorded and not used as the data in this research.

The participants in the organisations who were interviewed by the researcher were also informed of anonymity. In addition, the researcher made sure their anonymity by avoiding writing the detail descriptions of their identity as much as possible. Also anonymous name was used when it was necessary for the data. The issue of anonymity was also discussed and ensured in the end of the interviews in the case that the interview included private and vulnerable information. In that case, the interviewees often directed the researcher what to exclude. In an extreme case, one interviewee opted out to be included in the thesis.

The observation and natural occurring conversation were carefully verified in this research as already discussed in Section 6.2.3 in the previous chapter. As for observation, the researcher wrote down a certain observation related to case study questions, and then tried to ask the person for the reason for the action. For the natural occurring conversation, the researcher recognised the contextual richness; at the same time, the conversation needs to be validated. In the case, the researcher also took field notes for a certain conversation, and

then tried to ask the person to confirm it.

Over all, the researcher ensured that the descriptions in this thesis are not prejudicial and it does not threaten anyone in anyway. In order to validate the fieldwork experience, the researcher sent the summary reports about each case study to each organisation. Also after the completion of the synthesis of the research, the report of the synthesised findings from four case studies will be considered to send to the organisation.

7.4 Initial Reflection on the Data Collection

One of the issues for data collection was the difference between the two languages used in collecting the data, i.e. Japanese and English. Although the focus of these case studies is not linguistic issues, languages are sometimes the most distinguished evidence to be observed of cultural differences. For instance, Japanese language may be considered to be more hierarchical than any other language and it is very important to use an appropriate polite form of address, depending on the power and social position[10]. English by contrast may be considered to be relatively free from issues of power and social position. This research did not employ strictly structured interview schedules which could cause problems in translation, rather it employed a flexible framing of phrasing for interview questions. This made it easier to formulate the interview questions in two substantially different languages.

Another issue associated with data collection was the researcher's identity, in terms of nationality and personal understanding of environmental issues. This may have influenced the data collection. Interestingly, the researcher was warmly welcomed as a foreigner in

[10] In Japanese language, generally there are three explicit forms of honorifics: general polite language, respectful language, and humble language. Depending on the choice of register, the social positions of the speaker and the listener can be identified.

both the two countries. In the two sites in Japan, the researcher was viewed as a student who had been studying in the UK and thus a lot of staff and participants were curious about life and study in the UK. Staff in the ESD-J in particular wanted to know about education for sustainable development in the UK, which helped the researcher in building rapport. In one extreme case, a teacher from a junior high school (whom the researcher met in one case study site in Japan) misunderstood and took the researcher to be a foreigner because of her accent. Another example, was a temple priest (whom I met as a client of Ikaruga Kousha) who left a comment on his blog saying that he was impressed to find a student who was studying in the UK, but was still interested in traditional Japanese culture (This story will be presented again in the next section).

In the two British cases, the respondents were interested in environmental education or education for sustainable development in Japan and the researcher could contribute by giving information not just by conducting interviews. Overall, these four sites were interested in disseminating the practice of their organisation to a "foreigner" and any hostile attitudes toward the researcher were not recognised.

7.5 'Halfie' Researcher in Environmental Education Research

The concept of 'halfie' researcher (Abu-Lughod, 1991) was relevant in this context of researcher's identity in terms of nationality and personal understanding of environmental issues. According to Abu-Lughod (1991, p.137), halfie researcher denotes a researcher "whose national or cultural identity is mixed by virtue of migration, overseas education, parentage". This is to describe an alternative type of researcher, as compared to the traditional ethnographer or anthropologist, mostly Western researchers, going to the non-Western field to discover unknown groups of people, forms of communities,

organisations and so forth. The ethical issues of a halfie researcher in education research were explored by Subedi (2006) by explaining his experiences of fieldwork in his own country Nepal. Subedi (2006) was a researcher who was born in Nepal and brought up there until he was about 18 years old at which point he moved to the US for his education. When he went to his 'home', Nepal, to investigate education, he encountered political and economic issues concerning his other identity as American which made it difficult for him to encourage respondents to open up and talk frankly. In this research, the researcher was prepared for the complexities of being a halfie researcher; however, the researcher did not find difficulties as identified by Subedi (2006). Arguably, Japan is a westernised country to some extent and shares quite similar economic and political agendas in education as are found in Western countries.

However in Japan, rather than economic and political issues in education, the language and cultural values can be significant issues. Kondo (1990, p.11), a Japanese American who looks Japanese but cannot speak fluent Japanese, found herself positioned as a "living oxymoron" and suffered from a lack of "cultural competence" whilst conducting a fieldwork in Japan. In non-Western countries such as Japan, native researchers need to play a key role in collecting data from native people and translating knowledge for Western researchers, not just translating language (Abu-Lughod, 1991). As mentioned earlier, one of the interviewees the researcher interviewed in this case study left the following quote in his diary in his Blog (Box 7.2). As it can be seen, there is an expectation from native people to translate their knowledge to the Western countries as well.

Box 7.2: A diary from one of the interviewees

"This afternoon, I was interviewed by a young Japanese woman who is studying in the UK. The topic of discussion was 'the environment'. This woman aspires to get a PhD in Education. The interview was for her thesis, which would be on the subject of environmental education. As she explained 'the environment', she reached out to the traditional side of Japanese culture, showing appreciation for Japanese temples and the shrine carpenters, and visited here with a reference of Master Ogawa. She had great perception, absorbed information quickly and responded well to difficult discussions. I was delighted with the conversation and thought that living in a western country should give her a greater awareness and pride in Japanese culture. However Japanese people tend to be disappointed and complain about their culture. How wonderful it would be if this lady could enlighten the world about the "trueness" of Japan." (Amano, 2007, http://www2.diary.ne.jp/logdisp.cgi?user=160505&start=11&log=200701&maxcount=28, translated into English by the author)

In this research, not only cross national issues were an important consideration, but also there was a need to consider environmental values as another dimension of the halfie researcher's identity. More specifically, the case studies were systematically chosen based on the literature review on environmental ideologies and the perspectives of contexts and change. Because of the wide range embraced in the research, the researcher experienced quite different organisational cultures. That is, whilst conducting the fieldwork, the researcher "travelled" from one culture to another, not just geographically but also ideologically. For example, the researcher was often asked the innocent question by participants: "why did you choose this organisation?". Most of the time, participants were not apparently satisfied with the explanation of the research aim and design. They apparently wanted to know that the researcher's identity aligned with their own preferred environmental view. This aspect of the researcher's identity regarding her "environmental" values is an important issue whilst conducting environmental education research.

However, in terms of relevance to the evidence-based approach which attempts to synthesise findings or review studies systematically, this identity of being an halfie

researcher was convenient, because the researcher could avoid being strongly in favour of, or dogmatically supporting, any ideological position or cultural perspectives. Given that the halfie researcher is more a conceptual mindset, rather than just an identity, it is very appropriate for the "halfie researcher" to adopt an evidence based approach as this approach to research.

7.6 Evaluation of the Reliability of Data Sources

In terms of the reliability of data sources, Yin (2003, p.86) discussed the strengths and weakness of each type of source. Documents are stable, unobtrusive, exact, broad in coverage, yet entail weaknesses regarding retrievability and the bias of the author. Interviews are targeted and provide insightful evidence, but suffer from weakness created by: biased questioning, biased responses, inaccuracies owing to poor respondent recall, and reflexivity, that is, the interviewee responds with what the interviewer wants to hear. Observations are real and contextualised, and provide insights into interpersonal behaviour between people and the cultural features embedded in physical artefacts, but have the weaknesses of being time-consuming and expensive.

In line with the data collection plan, the following data were collected during the case study. The quantity of data from each source varied slightly, according to the characteristics of each organisation. For example, the Ikaruga Kousha does not have a website for its organisation, whereas case study one, the WWF-UK has extensive information on its website. During the fieldwork for Case study three, the Schumacher College, the researcher successfully located a large number of respondents with whom to conduct interviews and thus gained more evidence. Over all, in terms of the quantity, sufficiently rich data sources were successfully accessed for all four case studies as seen in Table 7.1.

Table 7.1: Details of data sources in each case study

	Case study one: the WWF-UK	Case study two: the ESD-J	Case study three: the Schumacher College	Case study four: Ikaruga Kousha
Documents	• WWF international website • WWF-UK website • WWF learning website • WWF-UK annual reports • Case study reports (written by staff) • Leaflets about learning for sustainability • Action research reports (written by one of the staff) • One chapter from a book (written by staff)	• ESD-J Website (in Japanese/English) • Annual Reports • Leaflets about education for sustainability • Published studies (written by staff) • News letters (published every month) • Emails in emailing lists	• Schumacher College Website • Brochure of course descriptions • Books written by several key persons at the College (e.g. Kumar, Harding and so on)	• Narrative books (e.g. Nishioka and Ogawa) • TV Documentary Programme (produced by NHK) • Interview articles on magazines • General Company detailed reports
Interviews	• Semi-structured interviews with two full time staff • Spontaneous interviews with participating teachers	• Semi-structured interview with one full-time director • Semi-structured interview with one part-time worker • Informal talks with several workers • Directors in local NGOs which participated in ESD-J	• Semi-structured interviews with directors • Semi-structured interviews with participants on the course • Semi-structured interviews with previous participants • Spontaneous interviews with participants • Spontaneous interviews with helpers • Spontaneous interviews to other members of staff	• Semi-structured interviews with director (master carpenter) • Semi-structured interviews with participants (disciples) • Semi-structured interviews with the previous participants (previous disciples)
Observations	• Participant observation of learning in workshops at the conference	• Participant observation of learning in workshops at the conference	• Participant observation of learning on the course • Direct observation of the physical environment in the College and surroundings	• Direct observation of work and learning in the workshop • Direct observation of artefacts (completed buildings)

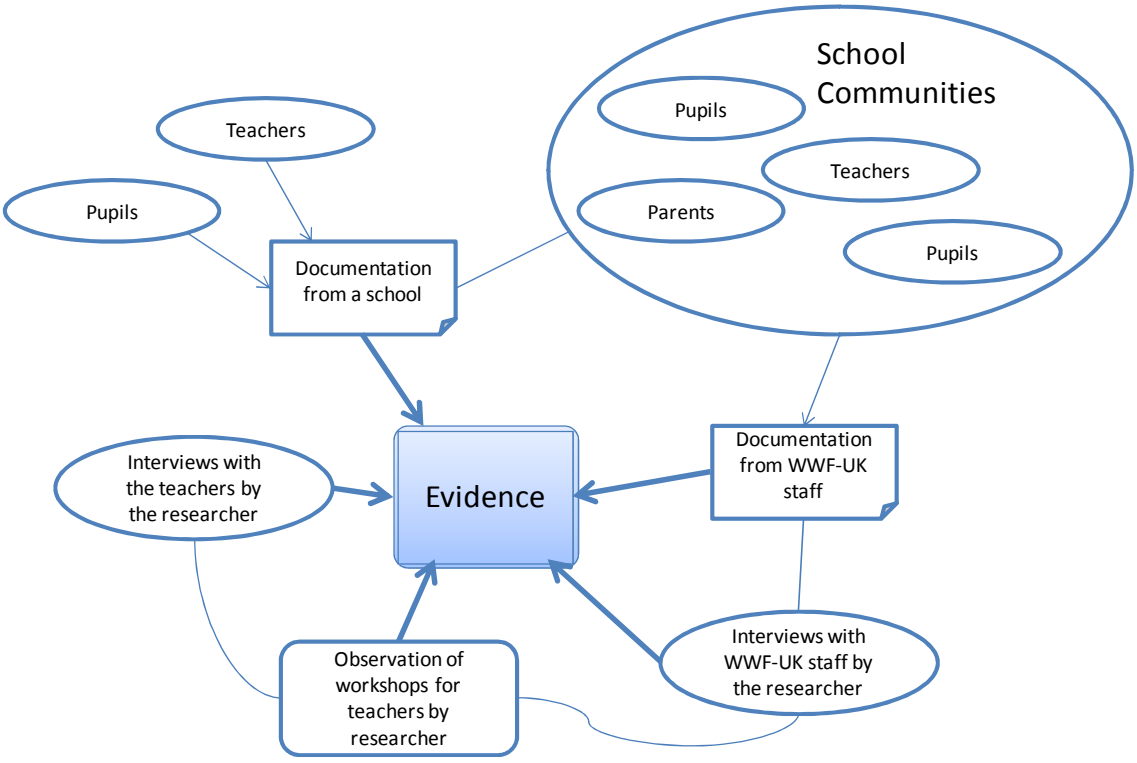
In these four case studies, in addition to Yin's concerns, the quality of interviews showed slight variation depending on: the interviewee's confidence, insights into their practice, experience of participating in interviews and their motivations for cooperating in this research. For example, one of the organisations was quite busy owing to a shortage of staff and a heavy workload, and thus the commitment of the members of staff to participating in this research appeared slightly lower than that experienced in the other organisations. Also, for Case study three, the Schumacher College, since the researcher participated in the course (because it was requested from the college), the researcher was emotionally attached to the experience; thus at the initial phase of the analysis, it was difficult to analyse critically compared to the other case studies.

7.7 Corroboration of Data Source Triangulations

Yin (2003) stated that a variety of data sources is recommended for triangulation. Hammersley and Atkinson (2007) acknowledged this but pointed out the danger of having a too optimistic view that the aggregation of data from different sources will add up to produce a more accurate or complete picture, without problems. While conducting the case studies in this research, the researcher experienced similar concerns of relying on only a variety of data sources might be insufficient to triangulate the evidence. For example, what if most of the accessed data sources, i.e. documents and interviews, were produced by the same person, i.e. the same member of staff in the particular organisation?. It can be argued that it achieves triangulation within the evidence produced by the same person. However, in order to produce stronger triangulation to pursue the evidence, the researcher began aware of who is a mediation of data source; i.e. Who produced the data about whom? This was a strategy to attempt to collect data sources from different mediators within the organisation. The following figures (Figure 7.2 to Figure 7.5) shows maps of data source triangulation for

each case study in the way of concerning the mediation of data source.

Figure 7.2: Data source triangulations in Case study one (the WWF-UK Formal Education Team)

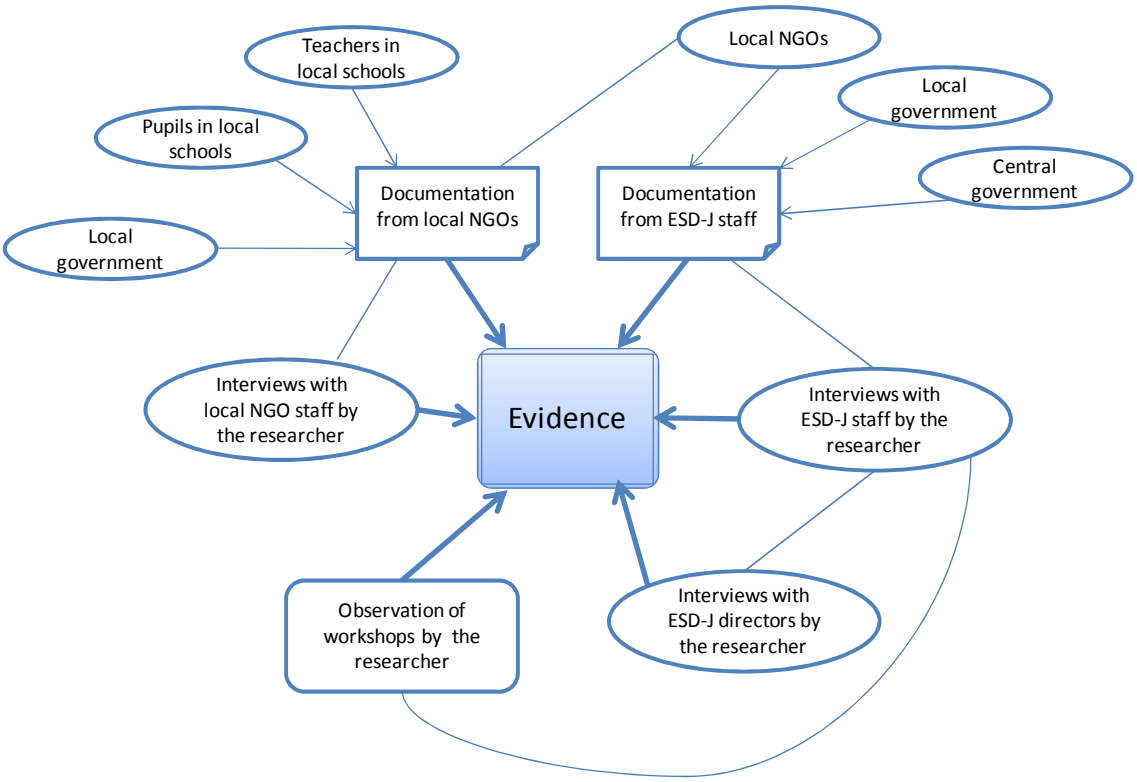


(Notes: lines indicate the possibilities for cross-checking; arrows indicate the flow of evidence; circles show primary informants; squares are processed documentation; and rounded squares are observation by the researcher.)

In this case study, the interviews with staff, observations of workshops and interviews with teachers who participated in the workshops, produced data that was directly collected by the researcher. There was the documentation written by schools and the WWF-UK members of staff themselves. Particularly in the WWF-UK, the staff conducted case studies and action research on a number of schools and documented this. Such evidence was not directly witnessed and documented by the researcher; though it was useful and rich data from which to develop evidence, and it can be triangulated by other data sources collected by the

researcher.

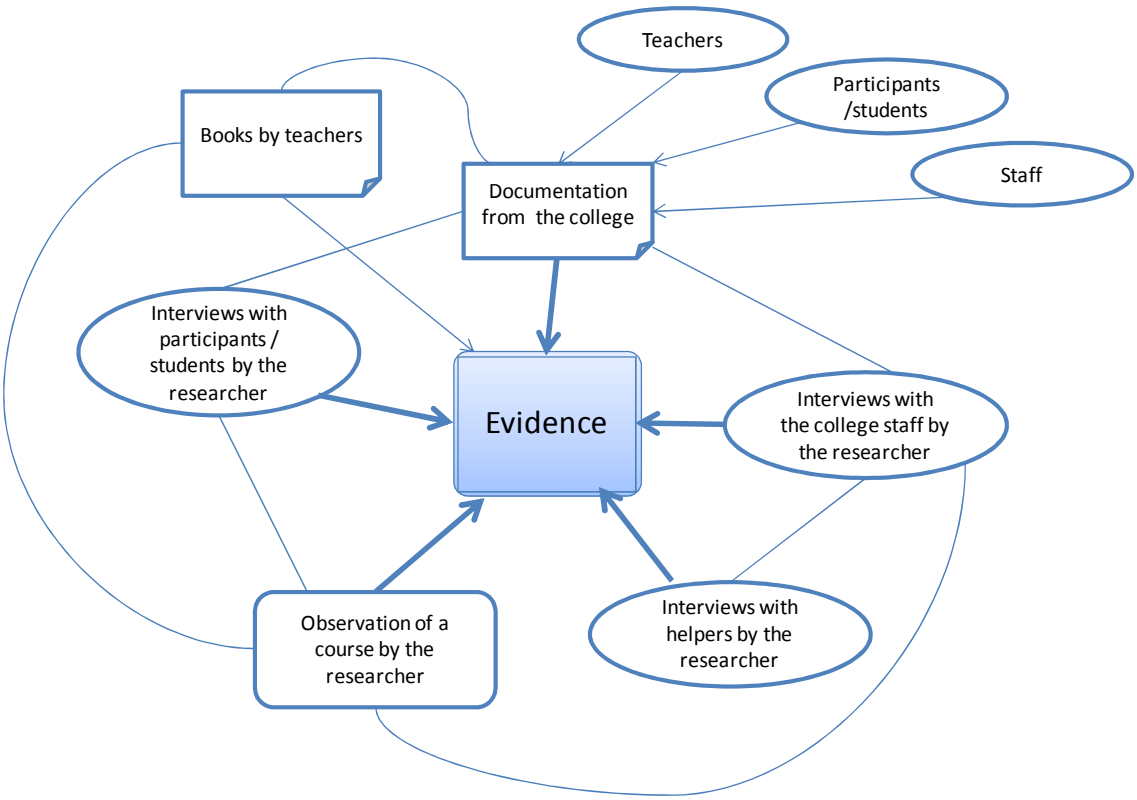
Figure 7.3: Data source triangulations in Case study two (the ESD-J)



(Notes: lines indicate the possibilities for cross-checking; arrows indicate the flow of evidence; circles show primary informants; squares are processed documentation; and rounded squares are observation by the researcher.)

In this case study, the interviews with staff in the ESD-J, observation of workshops and interviews with staff in local NGOs which participated in the ESD-J network, were directly collected data by the researcher. The ESD-J published a variety of documents related to practice, particularly that conducted by local NGOs, local governments, and local schools. These were helpful for triangulating with interviews and observations. In addition, the evidence was triangulated with the interview with leaders and participants in local NGOs under the ESD-J network.

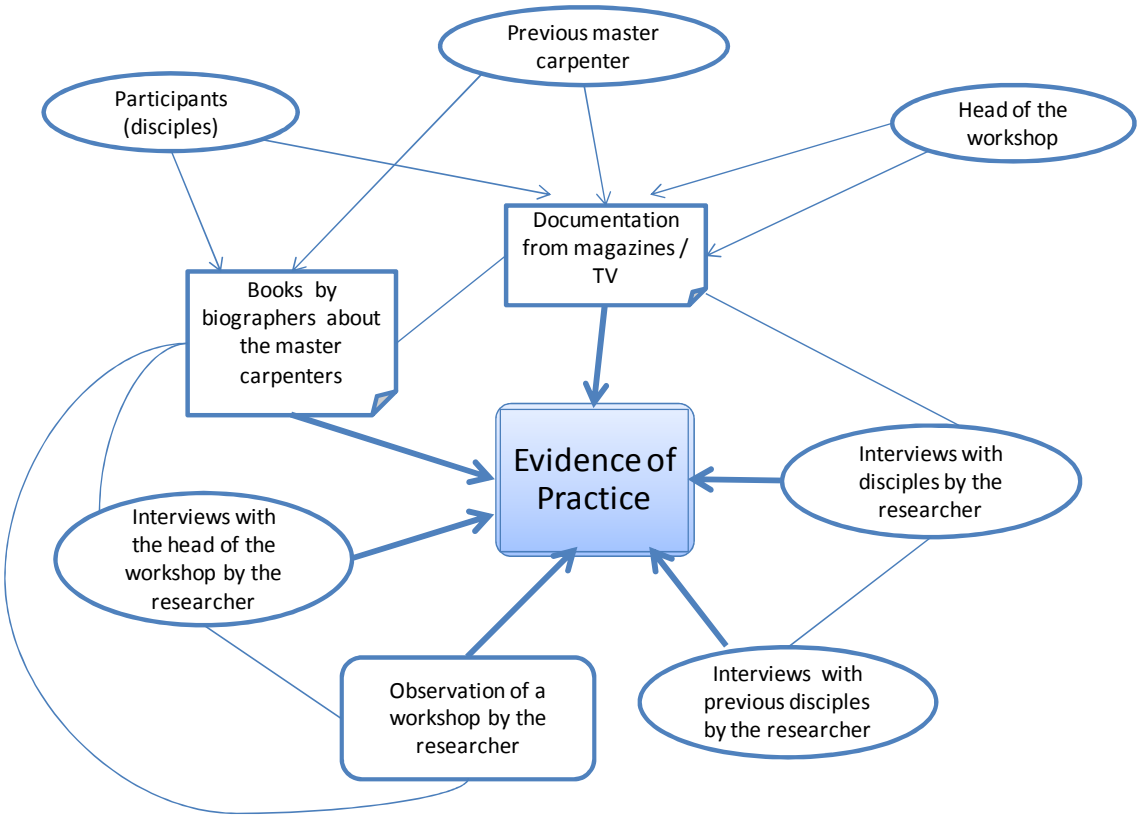
Figure 7.4: Data source triangulations in Case study three (the Schumacher College)



(Notes: lines indicate the possibilities for cross-checking; arrows indicate the flow of evidence; circles show primary informants; squares are processed documentation; and rounded squares are observation by the researcher.)

At the Schumacher College, little documentation related to the practice conducted by the college was obtained, thus data gathered from interviews with different agents, i.e. the directors, teachers, participants, helpers and so on, were used to investigate the evidence of practice. Books written by the teachers and directors in the college did not particularly mention the practice in the college, but rather focussed on their ideas and philosophies about the content of teaching. This was helpful for understanding their practice and for triangulating with the interviews and observations. These were not regarded as direct sources of evidence.

Figure 7.5: Data source triangulations in Case study four (Ikaruga Kousha)



(Notes: lines indicate the possibilities for cross-checking; arrows indicate the flow of evidence; circles show primary informants; squares are processed documentation; and rounded squares are observation by the researcher.)

In case study four, data from interviews with the head carpenter and disciples, and from observation were directly collected by the researcher. In this case study, documentation and books provided rich, in-depth descriptions of their practice, however it might be biased or exaggerated. Thus conducting the interviews with a number of appropriate people was helpful for triangulating the data sources.

7.8 Summary of the Chapter

This chapter has dealt with reflections on and an examination of the implementation of the

data collection stage. The implementation of the fieldwork is reported on for each of the four case studies. Moreover, the fieldwork experience is reflected on in terms of the researcher's identity as "foreigner" in both countries, the UK and Japan adopting the concept of the 'halfie' researcher. Concerning this, not only geographical and cultural identity, but also environmental ideological values are issues in order for data collection in environmental education research. This chapter has reflected on the reliability of each type of data source and evaluated these in terms of the variety of sources, and the agency of data.

Chapter 8

Case Study Reporting and Data Analysis

Reporting and analysis in the case study methodology are the least developed and hence the most difficult aspects (Tellis, 1997). In this research, data presentation and data analysis are separately presented, in the way that the details of the case studies lead to the high lucidity of analysis and discussion. As a precursor to these case study reports and analysis, this chapter sets out the ways used for the case study reporting and the methods used for analysis. Firstly, the way of data presentation is considered (8.1). Secondly, the general strategy for qualitative data analysis is reviewed with a focus on thematic analysis (8.2). Then, the issues around computer aided analysis are discussed in order to facilitate a decision on selecting software (8.3). Lastly, the actual procedure of thematic analysis is demonstrated (8.4). After this chapter, Part III (Chapter 9 to Chapter 12) presents the descriptive reports of the case studies, and then Part IV (Chapter 13 to Chapter 16) details the analysis and discussion of these case studies.

8.1 Case Study Reporting

Van Maanen (1988), who specialised in organisational ethnography in management, classified reporting styles into three broad approaches: realist tales, confessional tales and impressionist tales. Realist tales are documented descriptions and explanations given in an attempt to achieve objectivity, these are sometimes dry and dispassionate; confessional tales attempt to expose the author's personal feeling concerning the culture s/he uncovered, which provides readers with interesting materials; impressionist tales present striking stories with dramatic words, metaphors, phrases, and more importantly, they embrace "the expansive recall of fieldwork experience" (Van Maanen, 1988, p.102). The most obvious

difference in these styles is that realist tales tends to hide the researcher by stating ‘the X do this’. Whereas the confessional and impressionist tales emphasise the existence of the researcher by reporting ‘I saw the X do this’ (Van Maanen, 1988). Amongst those tales, a ‘realist-tales’ approach is taken to reporting case studies in this research, in line with the ontological neo-realist views which were discussed in relation to evidence-based approach in Chapter 5.

In terms of richness of description, Geertz (1973), in the field of ethnography, explained a strategy of describing meanings attached to words, actions, or behaviour as located in the embedded cultural context, known as “thick description”. According to Geertz (1973), a difference between thin and thick descriptions is that, thin description has this explanation: ‘the X twitched an eyelid’; in contrast, thick description adds more contextual explanations, such as: ‘the X winked to give a conspiracy signal to his friend’. That is to say, the concept of thick description is not strictly conceptualised and perhaps it is to provide some interpretive insights within the method of description. This thesis does not particularly take ethnography as its methodology; however, extending Geertz’s idea of thick description, it is very aware of the cultural context of the organisation and its practice, in order to maintain the richness of description.

In terms of reporting case studies in the style found in realist tales, moving towards “the best attempt of achieving objectivity” is very significant. In this respect, Nisbet and Watt (1984) introduced five major dangers concerning the reporting of case studies, which are quite informative in the context of this research.

Box 8.1: Dangers to avoid in case study reporting (Nisbet & Watt, 1984, p. 91)

- *Journalism*: picking out sensational aspects of the case, and distorting the account in order to emphasize these;
- *Selective reporting*: choosing only the evidence which supports your conclusions;
- *Anecdotal style:* letting the illustrations and the detail take over, so that the case study becomes a catalogue of trite and tedious trivialities;
- *Pomposity:* striving to derive profound theories from banal events, by wrapping up the account in elaborate verbiage or jargon;
- *Blandness*: uncritically accepting the informants' interpretations, presenting only those aspects where there is consensus, and consequently implying that there are no serious differences.

Taking the above advice, this research will proceed with caution and seek not to show evidence in a way that is journalistic, selective, anecdotal, pompous, or bland. In order to avoid those fallacies that can be found in biased reporting, this research sought to retain a common format in which the four case studies are described in a similar fashion. The format consists of five sections in light of the main four case study questions which were mentioned earlier in Chapter 6 (See 6.2.2)[11]:

Section 1: Background: an introduction to cultural, social, political background in which the case is located, in order to provide 'thick' case study reports;

Section 2: General information about the organisation: such as, the history of the organisation, organisational structure, financial sources, staff and so on;

Section 3: Theoretical perspective of the organisation: what they try to achieve, what knowledge they obtain in order to achieve it;

[11] Case study questions were: 1. What are the aims of the organisation in each case?; 2. What knowledge does each organisation have?; 3. What educational practices (learning) are employed in each case?; 4. Is the practice in each case effective in terms of: [a] the objectives of the case study organisations; [b] its contribution to sustainable development (international policy initiatives)

Section 4: Practice in the organisation: what learning is involved;

Section 5: A wider contribution to education and the environment: such as to national and international policy for sustainable development.

Though the points in Section 1 and 2 are not included in main case study question, they are thought to be necessary to understand each organisation. Section 3 is accorded to case study question 1 and 2; Section 4 comes from case study question 3; and Section 5 is derived from case study question 4.

Using this format as a basis, the four case studies will be reported in Chapters 9 to Chapter12. Evidence in each chapter is selected and shown effectively, as if it is presented in a time restricted and pressured situation by rivals in a court (e.g. Yin, 2003). After these chapters, the analysis follows. The following sections consider methods of analysis.

8.2 Qualitative Data Analysis

As mentioned earlier, data analysis in case study methodology has not been developed enough, thus this research sought the method of analysis in a wider literature of qualitative data analysis. Qualitative analysis may be categorised into three broad different types: data-led analysis, theory-led analysis and narrative analysis, although qualitative analysis in real situations is often more complicated. Data-led analysis is popular in Grounded theory (Glaser & Strauss, 1967). The process of analysis is based on interpreting text, in-depth, and generating theory by way of coding, linking and themes (Miles & Huberman, 1994). In theory-led analysis, such as qualitative content analysis, the code is often pre-decided from an understanding gained from priori research or theoretical considerations, then applied to data (Crabtree & Miller, 1999, pp.163-177). In this approach, the code is used in order to

focus on a particular presupposed theme amongst a huge amount of data. Narrative analysis constructs a story, particularly of individuals' chronological history. This research does not categorically seek narrative analysis because of the focus of investigation (See 6.2.1 in Chapter 6). Also as stated earlier (6.2.1 in Chapter 6), the case study inquiry has two units of analysis: firstly to examine the degree of theoretical fitness to theoretical framework; and secondly to investigate what kind of practices are undertaking in each case study site. This research attempts to use both other methods: theory-led analysis in order to analyse theoretical and ideological perspective in each organisation in light of literature review; and data-led analysis in order to analyse practice in each organisation.

Identifying themes is a common process in both data-led and theory-led analysis. According to Braun and Clarke (2006, p.77), thematic analysis is "poorly demarcated and rarely acknowledged"; however, it is a fundamental method for qualitative research. In other words, thematic analysis is not a specifically branded method of analysis such as "Grounded theory" or "Activity theory", yet, 'to thematise' meanings from data is one basic generic skill used for most qualitative analysis (Braun & Clarke, 2006; Boyatzis 1998; Ryan & Bernard, 2000). Ryan and Bernard (2003) emphasised three reasons for discovering themes in qualitative data: firstly, discovering themes is a basic of social science research; secondly, establishing themes allows readers (or users) of qualitative research to assess the researcher's methodological choices; and thirdly, qualitative researchers achieve a jargon-free vocabulary to communicate with other researchers across different disciplines. Opler (1945) stated identification of themes is a key step in analysing cultures.

However, the notion of a 'theme' is expressed using different terms in different academic work (Ryan & Bernard, 2003), for example: "categories" (Glaser & Strauss, 1967), "codes" (Miles & Huberman, 1994), "segments" (Tesch, 1990) and so on. In this research, the term

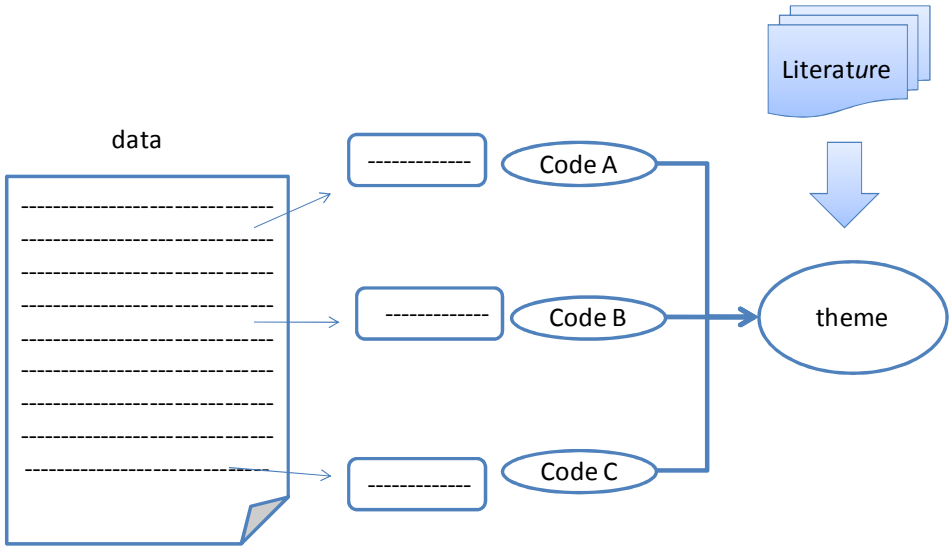
theme is used as a wider and conceptual entity, whilst the term code is a smaller chunk which relates data to the theme. Boyatzis (1998) described the differences in processing themes and codes found in data-led and theory-led approaches to thematic analysis. The following table shows this (Table 8.1).

Table 8.1: Summary of the Stages and Steps in Theory-led and Data-led analysis (adopted from Boyatzis, 1998, p.44 –Table 2.1)

	Data-Driven Approach	Theory-Driven Approach
Stage I	1. Deciding on sampling and design issues 2. Selecting subsamples	Deciding on sampling and design issues
Stage II	1. Reducing the raw information 2. Identifying themes within subsamples 3. Comparing themes across subsamples 4. Creating a code	1. Generating a code from theory 2. Reviewing and rewriting the code for applicability to the raw information 3. Determining the reliability
Stage III	1. Applying the code to the remaining raw information 2. Determining validity 3. Interpreting results	1. Applying the code to the raw information 2. Determining validity 3. Interpreting results

According to the table above, the process of the data-led analysis is to identify and create sub samples of codes and then to apply these codes to the remaining data. This might be simply described in the following figure (Figure 8.1).

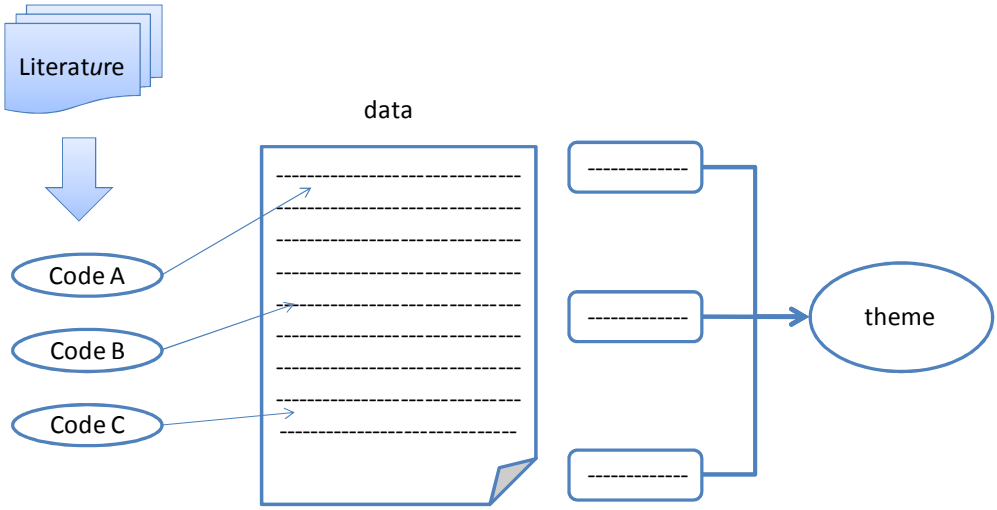
Figure 8.1: Data-led qualitative analysis



In this approach, after the codes have been applied, the significant theme is identified and discussed with existing literature in order to refine a theory or build a new theory.

By contrast, in the process of the theory-led thematic analysis, first a list of themes is identified from the theoretical framework. Secondly, the themes are applied to the data and particular texts are retrieved for comparison; thirdly, coding or comparing might be undertaken; and lastly, from the comparison, another set of alternative themes are generated. The process is demonstrated in the following figure (Figure 8.2). In this approach, after the text is retrieved, the theme will be discussed in relation to the context of a study.

Figure 8.2: Theory-led qualitative analysis



The hybrid approach of data-led and theory-led analysis is used often when there are multiple units of analysis (Boyatzis, 1998). The key objectives of the inquiry in this research are to explore the relation between the theoretical perspectives on environmental education in each organisation and how those theoretical perspectives play out in the practice of each organisation; i.e. the multiple units of analysis are the environmental education theory and practice in the case study sites. In this research the focus of theoretical perspective is important and codes and themes should be derived from literature reviews. At the same time, the research examines the practice of an organisation particularly what learning is going on in each organisation. Thus both approaches of theory-led and data-led analysis can be applied to analyse theoretical perspectives and practices in the organisations. The detail demonstration of the analysis will be presented later, in section (8.4).

8.3 Computer Aided Analysis

In recent years, Computer Aided Qualitative Data Analysis (CAQDAS) has been becoming more and more popular because of its convenience. Moreover, CAQDAS have the potential

to play a key role in qualitative methodology shifting it from a craft skill to being a more sophisticated and accountable process (Fielding & Lee, 2002). There are a number of choices amongst software packages for qualitative analysis such as NUD.IST, NVivo, AskSam, ZYINDEX and so on. According to the Online QDA (Qualitative Data Analysis) Project funded by the UK Economic & Social Research Council (ESRC), these software packages offer many facilities, as listed in the following box (Box 8.2).

Box 8.2: General facilities of qualitative data analysis software (Gibbs, Lewins & Silver, 2005, http://onlineqda.hud.ac.uk/Intro_CAQDAS/What_the_sw_can_do.php)

- Structure work - Enables access to all parts of your project immediately;
- 'Closeness to data' interactivity - Instant access to source data files (e.g. transcripts);
- Explore data - Tools to search text for one word or a phrase;
- Code and Retrieve Functionality - create codes and retrieve the coded sections of text;
- Project Management and Data Organisation - Manage project and organise data;
- Search and interrogating the database - Search for relationships between codes;
- Writing tools - Memos, comments and annotations;
- Output - Reports to view a hard copy or export to another package.

These attributes of qualitative data analysis software appear that they obtain multiple functions. This causes a typical mistake in the perception that new research technologies are a 'methodological' innovation, not just 'technical' innovation (Fielding & Lee, 2002). Thus, as the other side of the coin, one needs to be aware of the limitation of the software. According to Gibbs, Lewis & Silver (2005) again, the software do not have the following functions (Box 8.3).

Box 8.3: Misunderstanding of the function of qualitative data analysis software (Gibbs Lewins & Silver, 2005, http://onlineqda.hud.ac.uk/Intro_CAQDAS/What_the_sw_can_do.php)

- Do the analytical thinking for you;
- Do the coding for you. In general, you need to decide what can be coded in what way;
- Reduce bias, improve reliability or, on its own, improve the quality of your analysis;
- Tell you how to analyse your data;
- Does not calculate statistics, though some programs will produce simple counts and percentages.

Software does not substitute for qualitative analysis but it does facilitate: organising and managing data, effective coding and memoing. Considering the huge amount of data in this research, using software seemed not a bad idea and complies with Yin's (2003) suggestion that creating a database for case studies is a first step. Weitzman (2000, pp.806-807) also acknowledged the false hope that some researchers had that CAQDAS could handle analysis for them, and argued that in fact, the benefit of using software lies in better data handling, i.e. increasing the factors of: consistency, speed, representation and consolidation.

At the time of conducting this research, NVivo version 6 and later NVivo version 7 among those qualitative data analysis software were available at the University of Bath; however, these seemed to be inconvenient for this research. For example, those versions of NVivos are only able to import a simple text-based document such as Microsoft word (.doc), rich text file (.rtf) and plain text file (.txt); however, because of various forms of data collection in this research, there are different forms of documents involved such as institutional documents (usually PDF files including photos and figures), interview transcripts and notes (Microsoft word documents), photos (JPEG files) and so on. Besides, the documents are often mixed with two languages (English and Japanese). Those versions of NVivos could

not easily accommodate all these formats together[12].

Considering the advantages and disadvantages of available versions of NVivo, an alternative was necessary. Active Document Keeper (ADK) software[13], although not specially designed for qualitative data analysis, was more suitable for this research for several reasons. Firstly, this software is easily available online at a reasonable price. It does also have the most important features, for this research, of managing and categorising different forms of files (such as PDF, Microsoft Word, Excel, Powerpoint, JPEG files and many other forms of files) together. Secondly, since it can import different forms of files as they stand, the software can deal with multiple languages. Thirdly, although it does not have sophisticated functions of retrieving text and coding, as in NVivo, the software has the simple function of note-taking through which a note can be attached to each document. Also searching a word or phrase in a text, in titles of documents or in notes is available, and these two simple functions were enough for managing the data in this research. Moreover, this software allows the user to accommodate and manage most types of electronic documents, so that electronic literature (e-articles and e-books) can be also accommodated into one single database as well as data. That is to say, it made the researcher easier to organise literature in the literature review, as well as to manage the data in the case studies. Also, it is worth mentioning that ADK software was also used in the research project the researcher took part in (See HEFCE, 2007). The software was successful in organising and managing a large amount of data in folders in a hierarchical way. Most importantly, because of this experience in the research project, the researcher became familiar with using it.

[12] Later in 2008, NVivo 8 became available in the University which can do all the things mentioned here (importing different forms of document, etc). However, it was little late for the timely handling of data in this research and, would be considered as the one of choice in future.

[13] The details of the software can be found at the following website: http://www.orionsoftlab.com/adk/

In sum, new research technologies are not an innovation of methodology and should not be thought of as such. Choosing research technologies should be focused on the research design (methodology, methods, availability of the technologies, feasibility, costs, and so on) and the user (the ability, experience and preference of the researcher), rather than the technology itself. Weitzman (2000, p.811-814) suggested additional questions that have to be addressed: “What kind of computer user are you?”; “Are you choosing for one project or for the next few years?”; “What kind of database and project will you be working on?”; “What kind of analyses are you planning to do?”.

8.4 Demonstration of Analysis with a Pilot Exercise

This research employs both approaches of theory-led and data-led analysis in order to analyse theoretical perspectives and practices in the organisations. The demonstration of this hybrid approach of analysis (theory-led and data-led analysis) was apprehended from the stage of analysis (Boyatzis, 1998, See above Table 8.1) and the comprehensive and detailed demonstration on the doctoral research on nursing practice by Fereday and Muir-Cochrane (2006). Based on their demonstration of the approach, this research conducted the following analysis. The first step is to develop codes from literature reviews. In this research particularly the themes were derived form the discussion on environmental ideologies (See Chapter 2) and the perspective of context and change (See Chapter 3). An example of codes is described below in Table 8.2.

Table 8.2: An example of codes developed on the theme

Themes	Codes
Environment / Nature	intrinsic values, resource
Ethics / Responsibility	stewardship, religious, spiritual
Community	participation, integration,
Technology	Large-scale technologist view, soft technologist view, anti-technologist view
Science	pro-science, anti-science
Market	economic growth
Capitalism	pro-capitalism, anti-capitalism, midway-capitalism (ambiguous about capitalism)
Education	personal-focus, social focus, personal and social focus, intrinsic value, instrumental value
Civilisation	West, East
Cultural theory (rationality for change)	hierarchical, egalitarian, fatalist, individualist
Sociological view	mechanistic view, organic view
Historical/ Anthropological view	industrial, non-industrial, indigenous

The second step is reading, listening, transcribing, summarising the raw data (such as documents, interview-recordings and hand-writing field notes). In this process, the researcher started to apply the theory-led codes into the data.

As mentioned in Chapter 7, the pilot fieldwork could not be arranged; however, the researcher thought testing out of the method of analysis necessary. The organisation was chosen and limited data analysis was conducted based on the limited information generated from documentary sources, published documents and websites, but without field notes and transcripts from interviews and observations. This organisation is an environmental NGO located in Japan. The detail of application is followed (Table 8.3). The data was analysed in Japanese as it is , then translated into English for presentation as follows.

Table 8.3: An example of applying the theory-led analysis

Themes	Example of evidence from the pilot case study
Environment / Nature	The better environment makes our life richer.
Ethics / Responsibility	The organisation focuses on green consumer education which reflects your lifestyles and lead to action as green consumer.
Community	The organisation welcomes volunteers anytime for any projects; also organises seminars and workshops for local people. There are the sign "Please come in without knocking" at the door of the office.
Technology	The organisation takes the soft technologist view and focuses on changing toward ecologically-minded technology such as energy efficient electronics and low emission vehicles.
Science	It is necessary to obtain accurate information of environmental problem and they rely on the science.
Market	If consumers will change to choose green products, the producers will change their values.
Capitalism	The one of the mission in the organisation is to greening economy and to build the society concerns both environment and economy.
Education	Environmental education is to increase creativity and capacity for building sustainable and ecological society. To educate children is an investment in the future. The pedagogy is focused on learning together not just teaching information.
Civilisation	Aspiration to the West: We need to learn from Western countries in terms of achieving sustainable city
Cultural theory (rationality for change)	Collective actions of individuals can change the society, thus to encourage small actions or rules such as recycling waste and choosing green products are important.
Sociological view	Mechanisitic: One of the goals is to transform Japanese society and create ecological city in Japan.
Historrical/Anthropological view	Industrial society causes environmental problems, thus we need to value more on agriculture.

The perspective of this organisation was thought to show the technocentric environmental ideologies and the reformist view of capitalism: for example, the organisation has a strong ideal model of a sustainable city in the contemporary Western countries which is oriented to both ecological and economic values. Also, it accepts that technology is necessary for achieving energy efficiency and science is also important for making accurate judgements

in addressing environmental problems. Their geographical assumption is that Western countries are leading environmental countries. For the main social assumption, mechanical view to change society from old to new as can be seen.

In terms of the practice, the analysis was not confined by the codes developed from the literature review. During the coding of the data, data-led codes were inductively derived from data and were also assigned to other segments of data. From the available data, the organisation has a number of projects of 'partnership' 'capacity building' and 'collaboration' with the governments. However, it was difficult to implement data-led coding in terms of organisational practice because of the shortage of the data.

The pilot exercise was not fully implemented; however, some issues emerged and needed to be considered. First issue is about translation: the data was analysed in Japanese and then translated a particular part into English for the presentation of analysis. This is because translating all the data into English takes so much time, thus it is inefficient. In addition, the researcher was aware that the original meaning and nuance of the language will be lost before analysis, which might be influence to the quality of analysis. Secondly, it was difficult to show the detail of the evidence only by making a table of each theme (Table 8.2) and presenting it. It was fragmented, thus it must be difficult for readers to make sense of. The researcher reassured the importance of setting the scene for readers and the necessity of reporting case studies before the presentation of analysis. Thirdly, data-led analysis on practice was challenging, partly because the researcher could not obtain enough data. There was a difficulty of generating codes and themes out of nowhere. Thus the researcher considered using the two dimensions of freedom and education practice (Figure 1.3 in Chapter 1) as a tentative idea for generating codes and themes on practice. Fourthly, the analysis of theoretical and ideological perspective by theory-led analysis, and the data-led

analysis of practice could be implemented separately; however, in order to explore the operationalisation of theory into practice (RQ 1), both analysis need to be carefully combined and discussed together. Lastly, in order to explore the effectiveness (RQ 2), analysis of both theory and practice in case study needs to be discussed in the three layers of variables in practice: i.e. the perspective of context and change, the ideology and the practice (which was discussed in Chapter 1).

Considering those points, for the four case studies, firstly the case study reports will be presented in Part III. Then, the details of analysis will be followed in Part IV. Here, there will be an analysis of theory and practice in each case study, and a discussion of theory into practice. Eventually, the analyses of case studies are synthesised in the last chapter.

8.5 Summary of the Chapter

This chapter discussed case study reporting and data analysis. For case study reporting, Van Maanen's "realist tales" and Geertz's "thick description" were adopted. For analysis, firstly general strategy of qualitative data analysis (data-led and theory-led analysis) was reviewed and thematic analysis was focused on. Also the analysis in this research sought to develop a hybrid approach of data-led and theory-led analysis. Computer aided qualitative data analysis was discussed in order to clarify the decision to use ADK software as an appropriate package for this study. Lastly, the actual procedure of thematic analysis was demonstrated by using pilot exercise.

The next part (Part III: Chapter 9 to Chapter 12) reports each case study in each chapter in order to set the scene for the analysis and discussion in the later part. The case study reporting will follow the approach discussed in this chapter (8.1).

Chapter 9

Case Study One – The WWF-UK Formal Education Team: An Initiative on Learning for Sustainability

This chapter reports on a case study in the WWF-UK, particularly focusing on mainstream education for sustainable development in primary and secondary schools in the UK, led by the Formal Education Team (WWF learning). In accordance with the format for reporting case studies in this research (which was derived from case study questions, See 8.1 in Chapter 8), firstly the background to this case study is presented in order to invite readers to the case study site[14] (9.1). This is followed by a presentation regarding general information on the team in the WWF-UK and their education team (9.2). Its theoretical perspective is considered next (9.3), and the practice thereafter (9.4). The chapter concludes by examining the organisation's contribution in the wider policy context (9.5).

9.1 Background: Sustainable development and formal education in the UK

In recent years, sustainability or sustainable development has become a significant agenda item in certain areas of UK policy. For example, in 2005, the prime minister launched the new UK sustainable development strategy "Securing the Future" (UK government, 2005), in response to international pressure from the World Summit on Sustainable Development held in Johannesburg in 2002. The strategy established four priorities: sustainable consumption and production, climate change, natural resource protection and sustainable communities. In the sphere of education, covering both formal and non-formal education, a number of initiatives were taking place before/after the Summit. A review of these

[14] Note that this section is not derived from data but the introduction of the background to the case study.

initiatives was conducted by Scott, Reid and Gough (2002). Overall, in spite of a number of initiatives in different education sectors, they found that there was no linkage between them and hence, there was nothing that amounted to a coherent strategy (Scott, Reid & Gough, 2002).

In particular, in the area of formal education, there have been a considerable number of initiatives, with regard to sustainability or sustainable development. For example, the Sustainable Development Education Panel was set up in 1998 to consider issues on education for sustainability, in England. However, the work of the panel made little impact on schools (Scott, Reid & Gough, 2002), and was terminated in 2003 after having drafted "The Strategy for Education for Sustainable Development (ESD) in England" in order to visualise a long term aim—particularly for the UN Decade of education for sustainable development (2005-2014). In addition, education for sustainable development was added to National Curriculum in 1999. However, it has been criticised as "patchy" in its implementation (House of Commons Environmental Audit Committee, 2005). More recently, the DCFS's (Department for Children, Schools and Families) initiative of Sustainable Schools was launched by the Department for Education and Skills (DfES). It recommended eight 'doorways' concerned with the aspects of: food and drink; energy and water; travel and traffic; purchasing and waste; buildings and grounds; inclusion and participation; local well-being; and global dimension (DfES, 2006a), and attempted to encourage the institutionalisation of sustainable development in schools In terms of institutionalisation, recently Scott's report (Special Schools and Academies Trust, 2007) explores more detail of the different stage of institutionalisation in schools.

Running parallel to these initiatives for sustainable development in formal schools, there have been other actions within the wider scope of sustainable development; for example,

'Eco-schools' (http://www.eco-schools.org.uk/) which is an international initiative to guide schools towards sustainable progress. Another example has been 'Every Child Matters' (UK Government, 2003) which is concerned with the well-being of children and young people (from the birth to the age of 19), in terms of: being healthy, staying safe, enjoying and achieving, making a positive contribution, and achieving economic well-being. Similarly, 'Healthy Schools' (http://www.healthyschools.gov.uk/Default.aspx) has focused on PSHE (Personal, Social and Health Education), healthy eating, physical activity and emotional wellbeing, whilst 'Growing Schools' (http://www.teachernet.gov.uk/Growingschools/) which is another government programme, has aimed "to harness the full potential of the outdoor classroom as a teaching and learning resource".

In this context, the WWF-UK Formal Education Team, of which more details are given in the following sections, works with schools in order to institutionalise sustainability and sustainable development. Some of the work by the organisation is commissioned by the government; for example, the Head of Formal Education works on the government's "s3: sustainable school self evaluation" (DfES, 2006b). This has led to the DfES supporting the WWF annual teachers' conference and promoting online pupil conferences. In addition, the Office for Standards in Education (Ofsted), supported by DfES, are carrying out a three year longitudinal research study into the effects of Education for Sustainable Development (ESD) on school improvement and pupil attainment and achievement rates. The 13 schools that are being monitored as part of this study are those that have been participating in the WWF-UK "Pathways to Change" programme.

9.2 The Organisational Information: the WWF-UK Formal Education Team

WWF or the "World Wide Fund For Nature"[15] established in 1961, is one of the largest and internationally most well recognised conservation NGOs, with a network covering over 90 countries. It is a charity supported by five million people worldwide (WWF-UK, http://www.wwf.org.uk/core/about/whoweare.asp). The aim of the organisation is mainly "a challenging, constructive, science-based organisation that addresses issues from the survival of species and habitats to climate change, sustainable business and environmental education" (WWF-UK, http://www.wwf.org.uk/core/about/whoweare.asp). WWF is an independent organisation registered under Swiss law, governed by a Board of Trustees under an International President and the current International President is HE Chief Emeka Anyaoku. It has about five million supporters and 90 offices all over the world that are categorised into two types: one of the categories, the autonomous WWF office, can raise funds and conduct work autonomously, whilst the other type works under the other autonomous WWF offices. Currently the number of autonomous offices is about 30.

WWF-UK is one of the autonomous offices and works with WWF Cymru (Wales), WWF Northern Ireland and WWF Scotland. The activities in WWF-UK are focused on the following areas as seen in the Box 9.1.

[15]The WWF used to stand for the "World Wildlife Fund" when established. However, given that the scope of conservation has grown from wildlife to addressing the environment holistically, whilst it maintains the initials WWF, the formal name for the organisation has been changed to the "World Wide Fund For Nature". However, North America still keeps the old name. (WWF, http://www.panda.org./faq/response.cfm?hdnQuestionId=3620012246264)

Box 9.1: Activities in WWF-UK (WWF-UK, http://www.wwf.org.uk/core/about/whatwedo.asp)

- *Government and policy:* WWF-UK raises crucial environmental issues with decision-makers of all political persuasions. We seek to influence them so that our key messages for the environment are incorporated into policy initiatives.
- *Business and industry:* WWF-UK's philosophy is to engage positively and constructively with business, so that we can develop partnerships, raise funds for the environment, stimulate green innovation in business, and challenge bad business practices.
- *Education:* WWF-UK plays a vital role in influencing the education syllabus and ensuring that the environment and sustainable development are represented, as well as providing resources and materials for teachers.
- *UK action:* WWF-UK is active in England, Northern Ireland, Scotland and Wales. We are focusing on how to reduce the UK's ecological footprint – the environmental impact we make on the wider world – because the need to take action at home is as important as it is elsewhere in the world.
- *Campaigning* and communicating with the public are a central part of WWF-UK's strategy to combat the effects of climate change. This year, our campaigning work has brought about an important change in UK law, and tighter regulations across Europe.

In the 2006 financial year, WWF-UK employed around 360 people (305 FTE[16]) in 11 office sites across the UK. Of this number, 245 FTE were employed at the head office, Panda House, in Godalming (WWF-UK, 2006). In the 2006 fiscal year, 44 % of income came from membership and donations. Most of this was spent on conservation and about 30 % was spent on networking, capacity building, social change, policy, public awareness and education, (WWF-UK, 2006) as seen in Figure 9.1.

[16] FTE stands for full-time equivalent

Figure 9.1: The income in the WWF-UK in 2005-2006 (WWF-UK, 2006)

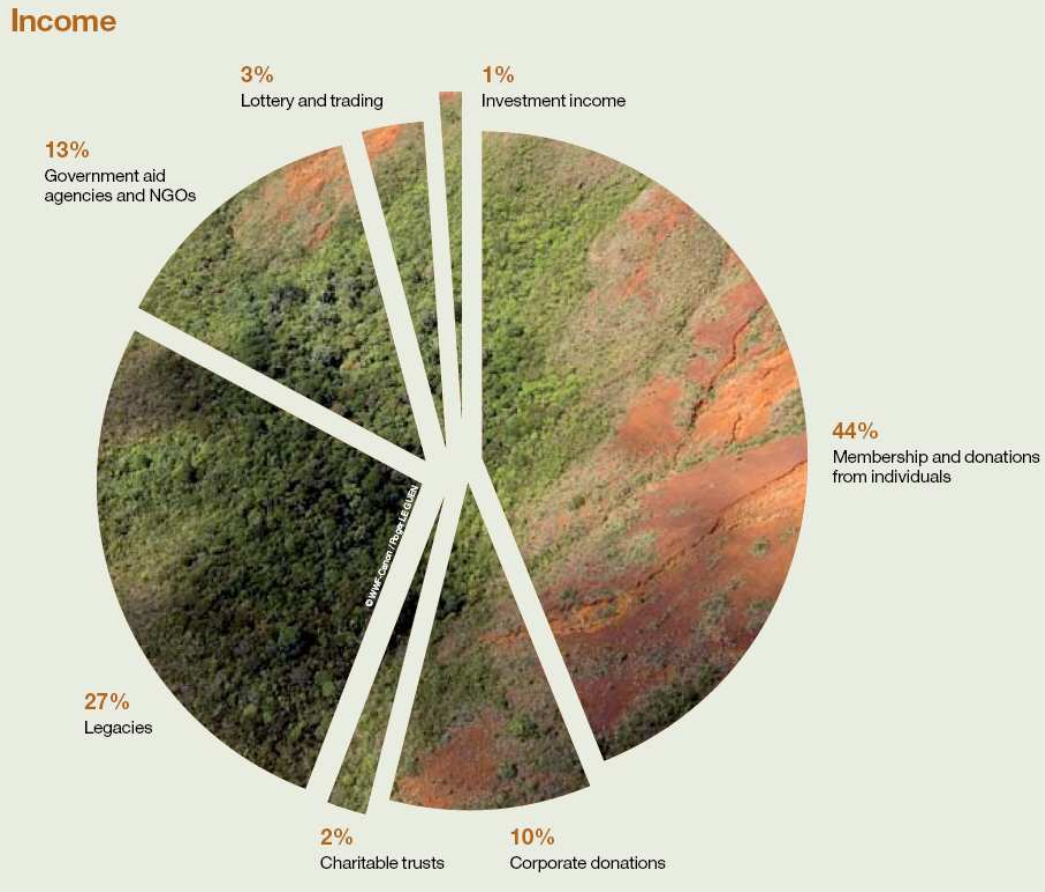
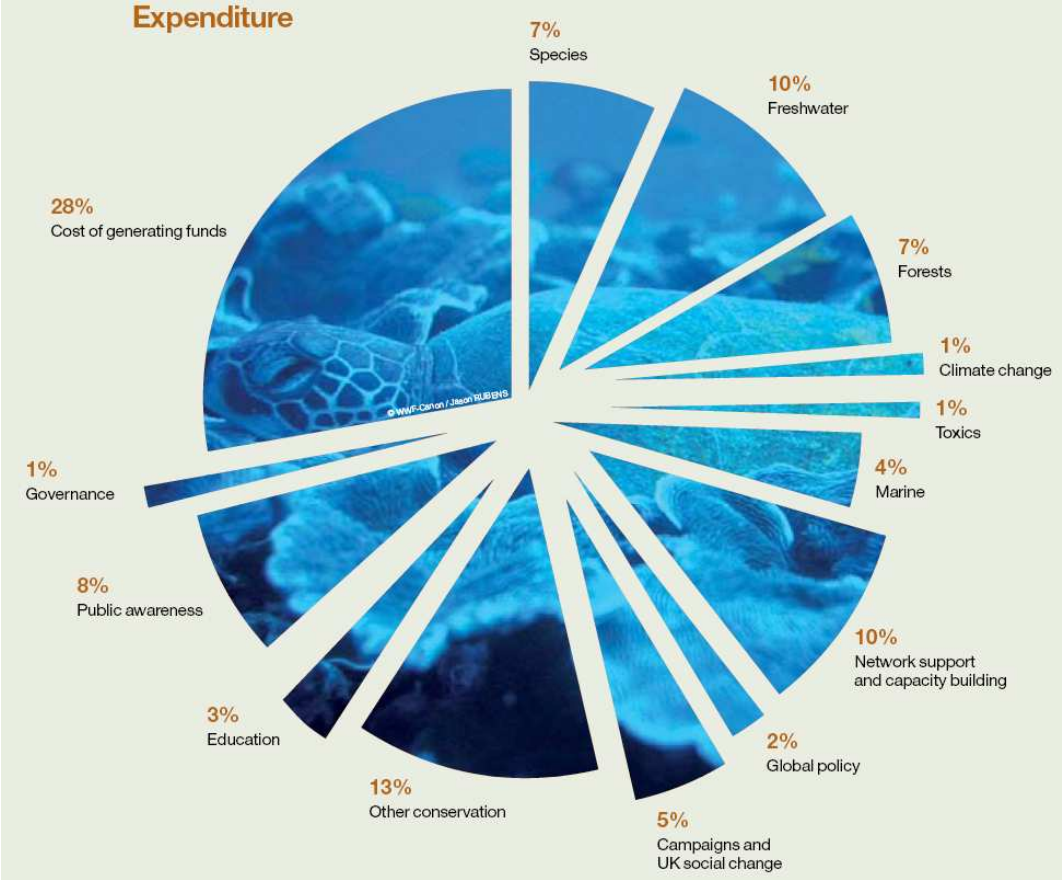


Figure 9.2: The expenditure in the WWF-UK in 2005-2006 (WWF-UK, 2006)



As seen in the figure, the considerable part of finance has been spent on education and related activities. The Head of Formal Education Team (Interview transcript 1.1) comparing this to other WWF offices in other countries, said:

> "When WWF-UK was founded as a charity, in the charity application procedure, first and foremost it's said we are education charity. So WWF-UK does have commitment to maintaining its work in education in UK"
>
> "…the purpose of having education program is ultimately to influence education system in some way, places like US where education system is disperse, I mean, every state has its own education system, whereas in England actually national curriculum is

national system, though you know, there is a lot of freedom at local level to interpret that. There is actually more tangible place that we can focus on and change the education system in UK."

Among a wide scope of their activities in the large scale of organisational structure, this case study focuses on its educational mission in the WWF-UK Formal Education Team, also known as "WWF Learning" (http://www.wwflearning.org.uk) which specialises in learning and sustainable development. The Team promotes and supports learning for sustainable development in formal education and offers a range of activities that support schools, teachers and parents, so as to include the whole school community. There are four full time staff in the team (Table 9.1).

Table 9.1: Staff members in the Formal Education Team in the WWF-UK (as of 2007)

Head of Formal Education Team (Full time)
Formal Education Officer (Full time)
Formal Education Officer (Full time)
Formal Education Officer (Full time)

The Formal Education Team is part of the Sustainable Consumption Group in WWF-UK. There are other teams titled including the word 'education' in the other groups such as the Community Group and the Business Group in WWF-UK. However this Formal Education Team in the Sustainable Consumption Group attempts to achieve the ultimate purpose of education, which is to help people think about a different relationship with natural resources (Interview transcript 1.1).

9.3 The Theoretical Perspective

According to the head of the team (Interview transcript 1.1), several ideas have influenced

the work of the Formal Education Team in the WWF-UK in two ways: in defining their view of sustainability and in shaping the methodology or strategy of their work. In particular, their interpretation of the concepts of sustainability and education has been influenced by Stephen Sterling who developed system thinking in sustainability education. He is the author of "Sustainable Education" (Sterling, 2001) and his PhD thesis "Whole Systems Thinking as a Basis for Paradigm Change in Education: Explorations in the Context of Sustainability" (Sterling, 2003) was partly supported by WWF (Interview transcript 1.1). The strategy (methodology) adopted for their work has been influenced by a group of academics from the fields of action research and action learning, based in the US. These include: Peter Senge, Michael Fullan and Otto Scharmer. Peter Senge, who is based at MIT, is famous in organisational learning and system thinking and is the author of "The fifth discipline : the art and practice of the learning organization" (1993). Otto Scharmer specialised in the same field at MIT and he co-authored "Presence: An Exploration of Profound Change in People, Organizations, and Society" (2005) with Peter Senge. Michael Fullan specialises in the same issues but has concentrated for in the field of education and has authored several books on this, such as: "Leading a Culture of Change" (2001) and "Leadership & Sustainability" (2005). These influences of action research and action learning were also mentioned by the other staff (Interview transcript 1.2). In the following sections, the detail of their theoretical viewpoints in the Team in WWF-UK are presented below.

9.3.1 The visions of the team

The WWF-UK Formal Education Team strives to promote education for sustainable development. In their website, the concepts of sustainable development and education for sustainable development are stated as follows (Box 9.2)

Box 9.2: WWF-UK's view of sustainable development and education for sustainable development (WWF-UK, http://www.wwflearning.org.uk/wwflearning-home/lfs-programme/esd/education-about-for-or-as-sustainable-development,612,AR.html)

What is education for sustainable development?

Education for Sustainable Development aims to develop a critical awareness of the ecological, social, economic and political forces which shape all our lives and of how they contribute to, or work against, quality of life and a sustainable future. It increases understanding of the interdependence of all life on earth, and the consequences of our decisions and actions, both now and in the future. It brings into question the old assumption that economic growth in itself leads to a better quality of life. It opens a debate about how we want to live.

What do we mean by 'sustainable development'?

Sustainable development is a complex concept but can perhaps be defined in simple terms as meeting the needs of the present generation without harming the ability of future generations to meet their needs. It therefore allows that Education for Sustainable Development must be far-reaching in its effort to help young people understand the causes of growing environmental and social problems, and then work towards a better future.

Education 'about', 'for' or 'as' Sustainable Development?

These different terms can be seen as reflecting a range of educational responses to sustainable development. Briefly:

- education about sustainability – sustainable development has a content/knowledge bias and can be incorporated quite easily within the existing educational model.
- education for sustainability – sustainable development includes content, but goes further to include values and skills. This involves some changes to the existing model.
- education as sustainability – sustainable development is a 'transformative learning response' which increasingly facilitates a 'transformative learning process'.

"These progressive responses, from accommodation, through reformation to transformation may be made at any level – by an individual educator, an institution, or a whole educational system" (Sterling 2001).

The concept of sustainable development is drawn from the influential Bruntland Report (WCED, 1987) which is frequently cited. Also the explanation of education in the text is influenced by socially-critical view of environmental education (about/through/for) and Sterling's sustainable education.

More recently, the team began to emphasise 'learning' rather than 'education'. According to one of their documents (WWF-UK, 2004, p.4), learning is "more of a psychological phenomenon, a process in which we develop ways to see and interact with the world around us", whereas education is "more of a sociological phenomenon, more focused on what educators do to facilitate learning in others". The Head of the Formal Education Team (Interview transcript 1.1) also mentioned that:

> "We use the word learning instead of education for a couple of reasons. I think we think of learning as the active process, whereas education is more as the system that supports that process. When the government talks about education for sustainable development, they are really talking about a system in schools to put it in place to support sustainable development….We are talking about a process. We found it important to talk about process, because we actually think that a learning process for sustainability is different from just 'good learning' tends to happen in a school."

In addition, the team prefers to use the term 'sustainability' rather than 'sustainable development', as the former "distinguishes the goal—sustainability—from current thinking about how to achieve it implied in 'development'" (Birney et al., 2006, p.68).

Based on this view of learning and sustainability, they began to emphasise "Learning for Sustainability", which is an inquiry-based pursuit and a lifelong process of exploring

sustainability (Birney et al., 2006). In the leaflet "Learning for Sustainability Together" (2007), sustainability is stated as: 'Care for oneself; Care for others—near and far, current and future generation; and Care for the environment—from the local to the global'. Also, four elements: environmental conservation, human-wellbeing, social justice and democracy, form the cornerstone of sustainability. Based on this view of sustainability, Learning for Sustainability is guided by three methodological principles, as follows (Box 9.3):

Box 9.3: Principle of Learning for Sustainability (WWF-UK, 2007)

Participating

- Connects people with nature and with one another
- Involves pupils and the school community in meaningful decision-making
- Builds ownership in and responsibility for successful action
- Gives people the skills to work together.

Systems thinking

- Enables people to see the whole, as well as the connections
- Places sustainability at the centre of school improvement and community development
- Combines learning from emerging science, from the creative arts, from practical action, and from direct contact with nature.

Action learning

- Asks key questions that reflect a deep understanding of issues and challenges
- Takes action in order to learn what approaches work best
- Enables people to think, see and act with openness to previously unimagined possibilities
- Reflects critically on the kind of change needed.

These principles obviously come from the influential thinkers such as Sterling (particularly for system thinking) and action learning academics in MIT which introduced earlier.

The view of sustainability in WWF-UK can also be seen in the developmental framework "Pathways", which is a tool and a practical guide for school and school communities who

want to develop good practice for learning for sustainability. One member of staff revealed that the development of "Pathways" was as follows:

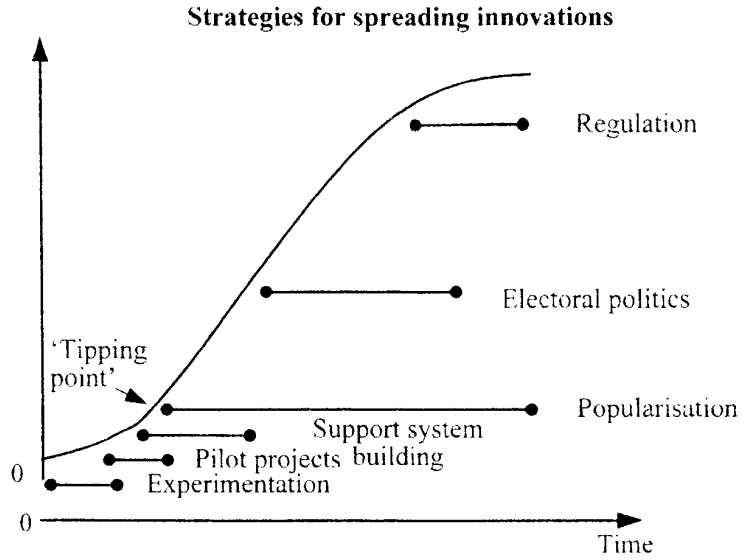
> "When we were developing 'Pathways', originally it was called the 'development framework' and actually the subtitle is still 'development framework', and that was following action learning cycles. The whole outcome of action learning cycle is to enable individual school to find their own journey. When we started discussing it [the title of development framework], we were trying to think of imagery which would play well with that kind of organic approach, saying it's not in a concrete mechanical way that you do the things…. And I think it was my colleague, when we were having brain storming ideas, who said 'What really is outcome—outcome which is finding your own pathway….your own way, your path you travel'. And when you say pathways—'s' on the end—it becomes plural, so you are saying you are creating your own pathway." (Interview transcript 1.2)
>
> "I think, I don't know what Ben or Liz think, but it's kind of like a multitude almost like branches of pathways through their journey. So they can use "Pathways" as a tool to develop the framework, picking and choosing any tool or activities they wish to choose. (Interviewer: I understand there are a lot of ways and processes to achieve sustainability, but do you think the goal is same?) Yes. The goal is that, I think, a vision for schools to ask that sustainability becomes the heart of their school." (Interview transcript 1.2)

This process of naming their toolkit might be well represented their thoughts on achieving sustainability.

9.3.2 The strategies of the team

One of the positive attributes of the team is that it has clear strategies for change. With understanding that both education and sustainability are social processes, the Team attempts to understand how their thoughts are going to be diffused and adopted by society. According to their article (Birney et al., 2006, p.71), their long term strategy can be described as an "S curve" adopted from Gilman (1999). It suggests six stages: experimentation, pilot projects, support-system building, popularization, electoral politics, and regulations.

Figure 9.3: Diffusion of innovation: the S curve (adopted from Gilman, 1999) (Birney et al., 2006, p.71 – Figure 1)

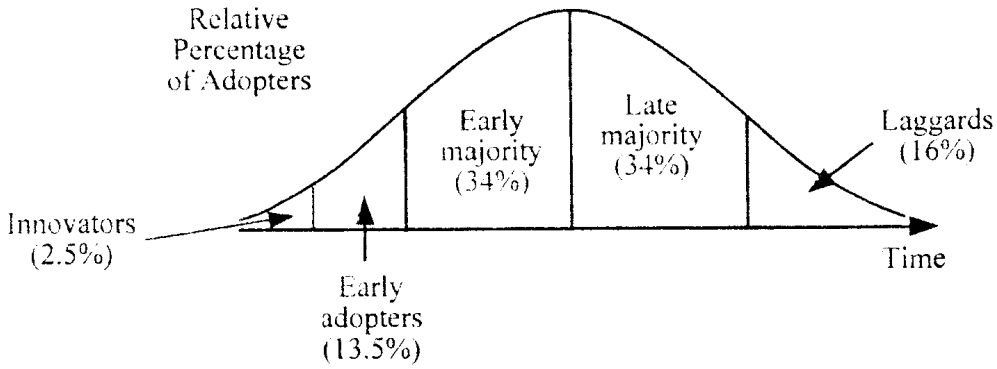


During an interview (Interview transcript 1.2), one staff member stated they were currently at the "tipping point". They are in the phase of conducting and analysing the pilot study and creating supporting system which will be described from the following sections. Their long term aim is to make a policy suggestion.

Regarding these six stages of social change, another strategy of the team (Birney et al., 2006,

p.71) is to consider taking different people on an innovation at various stages, In the following figure (Figure 9.3), five groups of adopters of innovation have been identified, the: innovators, early adopters, early majority, late majority, and laggards.

Figure 9.4: Normal curve of adopters (Birney et al., 2006, p.72 - Fig.2)



The team's strategy in the current phase (at the time of conducting case study) is to engage with "innovators" or "schools who are ready to work with us [WWF-UK]", as one of the staff mentioned during interview. In other words, they are not willing to work with schools at random, but they are keen to work with schools that are already interested in sustainability or sustainable development. By so doing, they are attempting to avoid spending energy working by conflicting with schools which would resist any kind of changes. As one member of staff put it: "we don't want to swim against the river" (Interview transcript 1.2).

9.4 The Practice of the Team

Based on the theoretical perspective described above, they conduct a number of practices. Among their practices, their main projects at that time of conducting this study were whole

school community projects (9.4.1) and teacher conferences (9.4.2).

9.4.1 The Whole School Community Project

From 1994 to 2004, the team worked with a number of schools and summarised the experience in a report: "One School at a Time—A Decade of Learning for Sustainability". From this experience, the team devised the development framework for school sustainability called "Pathways" (2004), as described above. This framework contains a number of activities and tools that schools can develop in their own way to achieve sustainability. The head of the team put it as follows:

> "The development framework, that we wrote, which is a series of activities that is a process, wasn't ours, wasn't something we invented, but was something we saw all the schools were doing over and over and over and over again. So we are just reflecting it back to the wider school community as a framework." (Interview transcript 1.1)

From 2004 to 2005, the use of this development framework was piloted in 11 schools. These pilots were examined and documented, as action research, by one of the staff (Birney, 2007). According to her, the focus of pilots was capacity-building of the: principals, teachers, parents and other members in the school community. This process of capacity-building is shown in the following box (Box 9.4).

Box 9.4: The Process of capacity building (Birney, 2007, p.5)

1. Engage – prepare for the potential of a community or partnership;
2. Familiarise each other, so as to establish a connection and to negotiate a relationship (scoping & forming) (or group or individual);
3. Planning what we might achieve together – establishing a purpose/vision, designing a programme;
4. Support – training, networking and one to one;
5. Action – launch (pilot);
6. Monitoring throughout the pilot stages (learning during);
7. Reflection (evaluation) and expand the learning from the pilot action;
8. Embed and expand the project to enable wider change through consolidation, legitimization and status;
9. Exit (of WWF) and therefore transform the project for the participants (Birney, 2007, p5).

In this process, as the staff (Interview transcript 1.2) emphasised, the last step is the exit of WWF from the project. Because of the small number of staff and resources in the team, the Team cannot continuously support the school. Thus the Team has to exit from the project and return the project to school at some point. This approach can be seen as being similar to that of "make-over" TV programmes in the UK and other countries, regarding, for example: fashion, diet and child-care. The facilitator gives: knowledge, skills and support to the participants and then monitors them, eventually withdrawing. One of the staff (Interview transcript 1.5) emphasises the difference between training and capacity building which encourages people to think:

> "People get used to a training session. So I could have invited a training session and I can design it. But my real intention is to enable them [participants] to look at

things differently and to be empowered to take on for themselves the actual creation of change."

After the examination of the pilot studies, the WWF-UK Formal Education Team is going to popularise the development framework in the wider school context and make policy suggestions. The other activities of the team include: holding an annual conference for teachers and practitioners, providing a range of resource and tools, and holding online discussions for pupils.

9.4.2 Teacher Conferences: the WWF-UK Conference 2007 "Learning for Sustainability"

Every year since 2003, the WWF-UK has organised a teachers' conference, in partnership with a number of organisations and the government. Unlike the capacity-building focused on specific school communities, the aim of these conferences is to popularise sustainability issues in education with a wider audience of teachers. According to the head of team:

> "Our teachers' national conferences are really one of the first efforts in this country to bring national awareness and attention to the fact this practice [of learning for sustainability] is happening within the school and in fact there was the community of people doing this and our effort to bring them together for those annual conferences was really one of the first events of its kind." (Interview script 1.1)

In June 2007, the 5th conference was titled "Learning for Sustainability" and held at the Central Hall in Westminster in corporation with the: DfES, Field Studies Council, Groundwork and the RSPB. It was attended by over 250 teachers and guests and consisted of a keynote speech and a number of workshops. Camila Batmanghelidjh made a keynote

speech and talked about her social work with marginalised children and youth. The workshops were about: sustainable schools, sustainability curriculum, sustainability programme and so on. The teachers appeared to be interested in the overall programme and also a conference bag[17] and materials that were given out (Field note 8.6.2007).In this vein, one of the team members said:

> "We did get feedback; very positive feedback on the whole. A lot of people said they will come again and it was creative….and they were a bit confused why we chose Camila to speak, because it was a different concept.
>
> "(Interviewer: why did you choose Camila?) I chose her because the DfES is looking at sustainability as including a care, care agenda. And we have always had speakers very environmental or government focus. And I wanted to bring somebody else." (Interview transcript 1.5)

Also regarding the conference bag, she described the process of choosing it:

> "Actually we didn't choose it. It was Department of Education who co-sponsored it. We wanted a conference bag that was not plastic and was reusable and the person in the Department of Education said, 'Oh I know, we have a very good relationship with 'We were what we do' [a name of an organisation]—which is the organisation and they were helping out of the book [to give to the participants in the conference]. Shall we see if we can get some of the bags?—a bit more fun you know' And we did. We got them for free. So that was good." (Interview transcript 1.5)

[17] The conference bag was the "I'm not a plastic bag" one, which was designed by a famous fashion brand, Anya Hindmarch (http://www.anyahindmarch.com/productdetail/news_detail?newsid=59), and the retail price is £5. It was quite popular at the time and the Guardian (http://www.guardian.co.uk/environment/2007 /mar/19/ethicalliving.uknews) and BBC (http://news.bbc.co.uk/1/hi/magazine/6587169.stm) reported a number of controversial stories: people queued for hours to buy the bag and it was sold for £200 on eBay.

> "People just talk about it [the bag] and have fun and it's a part of celebration, not just intellectual thing. It's got to connect people's fun and emotion and everything." (Interview transcript 1.5)

As the staff mentioned, it seemed fun for teachers. The teachers who attended to the conference for the first time said "Wow they gave us a lot of things. It's like a Christmas! I will definitely show this off to my colleague when I go back!!" (Field note 8.6.2007).

9.5 Contribution in a Wider Policy Context

Regarding the policy context, WWF-UK Formal Education Team has made their work linked with the government initiative of 'Sustainable Schools'. Sustainable Schools is a government initiative and not WWF's work. However, the Head of the Formal Education Team has been partly on secondment to work on the Government's "s3: Sustainable School Self Evaluation" (DfES, 2006b), which has led to the creation of benchmarks and examples of good practice. Moreover, this has resulted in a corporative atmosphere between the DfES and WWF-UK. WWF-UK built on their work to this government initiative as seen in one of the objective of Learning for Sustainability: "WWF-UK's 'Learning for Sustainability' programme strives to ensure that sustainable development and the concept of sustainable schools feature in government policy as a priority for education" (WWF-UK, http://www.wwflearning.org.uk/wwflearning-home/
school-stories/wwfs-work-with-schools/). The head of the team described the strategy of working with the government as follows:

> "When we speak to people in other organisations in this country, they are very surprised that we have such a small number of people and such a small budget in the

network, yet we are able to.… we actually influence big changes at the systems level, within the government. So it's not about the amount of funding or the size of staffing, [it's about] really strategically how do you pick the activities…. you choose to go 'innovating' rather than just, you know, simply supporting something it's going along. That's we can't get funding to do" (Interview transcript 1.1)

9.6 Summary of Case Study One

This chapter has reported on the Formal Education Team in WWF-UK. Based on their clear vision and strategy about Learning for Sustainability, the team has drafted the developmental framework "Pathways" and piloted it in a number of schools. The WWF-UK's annual teachers' conference offered the opportunity to popularise the framework. Also, WWF-UK works closely with the government, particularly the DfES, to bring about change toward sustainability.

Chapter 10

Case Study Two - the Japan Council on the UN Decade of Education for Sustainable Development: Japanese Initiative on Education for Sustainable Development

This chapter reports on a case study in the Japan Council on the UN Decade of Education for Sustainable Development (ESD-J) in Japan. It is a new organisation, formed in 2003, with the specific purpose of the UN Decade of Education for Sustainable Development (UNESCO, 2006) and is an organizational network located in Tokyo in Japan. In accordance with the format for reporting the case studies (See Chapter 8), the structure in this chapter as follows: the background of environmental education and education for sustainable development in Japan[18] (10.1), the general information of ESD-J (10.2), the theoretical perspective of ESD-J (10.3), their practices (10.4) and a wider contribution to policy context (10.5). The basic information relating to Japan (geographical features, map, names of Japanese ministries, education system and so on) is forwarded to Appendix. Also, the original documents corrected can be found in both English and Japanese, so that each quotation is clarified in the language of the original document.

10.1 Background: Environmental education and education for sustainable development in Japan

Education for sustainable development has been greatly influenced by environmental education in Japan. Japanese environmental education can be divided into three key stages

[18] Note that this section is not derived from data but the introduction of the background to the case study.

pertaining to the different environmental issues at the time (Ohara, 2000). One of the early influences emerged from the widespread industrial pollution, all over in Japan, caused by the rapid industrial and economic development of the 1960s and 1970s. This pollution brought direct impact on the population and there were serious victims in places such as: Minamata, Yokkaichi, and Toyama city. Because of this industrial contamination, a number of policies were undertaken by the government such as drafting regulations and law in terms of the pollution. Also the other governmental initiative includes education about pollution in formal school-based education. That is to say, environmental and social problems related to pollution were formally introduced into the social studies curriculum in schools. During the second stage, in the 1980s, when, to a substantial extent, there had be a resolution of the problems of industrial pollution, the focus of environmental issues gradually shifted away from this arena towards domestic pollution. The main concerns, on this front, were water contamination by domestic detergents and the increase in domestic waste. A number of citizens groups and NGOs took action on environmental education, particularly focusing on green consumerism and the 3 Rs (recycle, reuse and reduce) and environmental education became more concerned with the quality of the environment. In the third stage, since 1990s, global environmental issues, such as: climate change, deforestation and acid rain, have become serious environmental concerns. The two most influential international documents on environmental education, the Belgrade Charter (UNESCO-UNEP, 1976) and the Tbilisi Declaration (UNESCO-UNEP, 1978), were widely disseminated throughout Japan and a behaviouristic interpretation of those documents was predominant. Based on these documents, the Ministry of Education (1991, 1992) drafted guidelines for environmental education for all formal education levels, from primary through to high school level.

Another important influence on environmental education in Japan derived from the debate about the purposes of education, during the 1980s and 1990s. At this time there was

growing concern about the education system in Japan, which placed greatest emphasis on academic credentials. In particular, in Japan gaining access to a high-ranked high school and progressing on to a prestigious university is believed to be the passport to a 'promised' future career. Thus, the teaching methods have had a tendency to make children memorise transmitted knowledge, so as to pass entrance exams for such high schools or universities and this has put many of the pupils under excessive stress. Therefore, in recent years alternative pedagogies have been explored, such as learning by experiencing nature or learning through real issues in society. In this context, environmental education had much potential to offer an alternative pedagogy. The 'workshop' style of learning, which is not a transmitting but an explorative and participative learning style, has flourished in the: environmental NGOs, museums, social community centres and related organisations (Nakano, 2001). Also from this perspective, a number of different methods of education were developed, to engage in different social issues, such as: development education, gender education and well-being education. In addition, the education system and curriculum were reformed, so as to be "less stressful" or "more relaxed" from 1990s. For example, school days changed from '6 days a week' to '5 days a week' and the content of curriculum was dramatically reduced and simplified. More importantly, the Period of Integrated Study (PIS) which was introduced in 2002, throughout primary and high school education, offers opportunities for problem-solving studies on the topics of the: environment, international understanding, well-being, and information technology, for several hours a week.

Within this structure of environmental education in Japan, the concept of sustainable development has been introduced as an international policy. Because environmental education was well-established in Japan and institutionalised to some extent, the concept of sustainable development was introduced to give a more global and thus international

perspective, to environmental issues. The Ministry of Foreign Affairs (MOFA), which has being initiating and helping in a number of activities in developing countries for international development, was the first to be interested in education for sustainable development. By contrast, the Ministry of Environment (MOE) and Ministry of Education, Culture, Sports, Science and Technology (MEXT) were not involved at this time. That is to say,, the emphasis on education for sustainable development in Japan has been that of a "development" perspective. In 2002, one of the civil groups particularly interested in education for sustainable development was encouraged by the government to form an organisation called the Japan Forum for Johannesburg (JFJ), in order to advocate policy and disseminate information from the World Summit on Sustainable Development (commonly referred to as the Johannesburg Summit). Together with the JFJ, the Japanese government (mainly the MOFA) also took an initiative to promote on education for sustainable development. For example, in order to set up the structure for this promotion, in 2002 a project team was formed with the collaboration of: UNESCO, the Ministry of Foreign Affairs (MOFA), the Ministry of Education, Culture, Sports, Science and Technology (MEXT), and the JFJ (MOFA, http://www.mofa.go.jp/mofaj/gaiko/kankyo/edu_10/10years_gai.html). In the same year, the Government, together with the JFJ, proposed "the period from 2005 to 2014 to be designated the 'UN Decade of Education for Sustainable Development (DESD)'" at the Third WSSD Preparatory Committee in New York.

After proposing the UN Decade, the project team drafted a law to enhance the initiative and this "Law for Enhancing Motivation on Environmental Conservation and Promoting of Environmental Education" came into effect in 2003. In addition, building on the JFJ, the Japan Council on the UN Decade of Education for Sustainable Development (the ESD-J) was formed in 2003, in order to promote education for sustainable development.

10.2 Organisational Information: the ESD-J

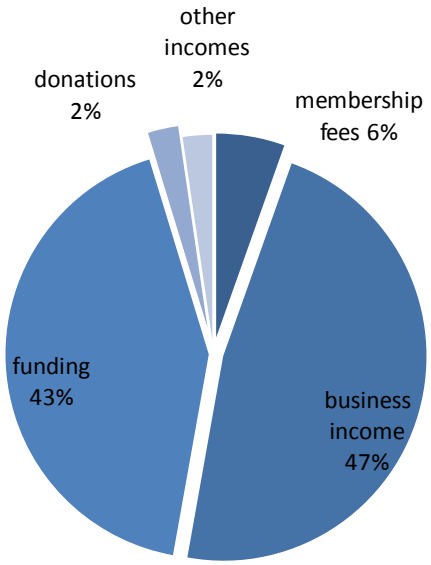
The ESD-J is a relatively new organisation, formed in 2003, given the role of implementing the UN Decade of Education for Sustainable Development. It is a non-governmental organisation promoting education in Japan and other Asian countries. In addition, it facilitates a network of other NGOs and individuals to collaborate with the: government, local authorities, companies and educational institutions, in promoting education for sustainable development.

The income of the ESD-J comprises: membership fees, business income[19], funding and donations from a number of sources, and the expenses include: business operations, administration and loan repayments. In the 2006 fiscal year, total income was about 29 million Japanese Yen (£141,695) [20] and total expenses were 37 million Japanese Yen (£180,782) as seen in Figures 10.1 and 10.2. The deficit was covered by drawing on savings from the previous fiscal year.

[19] Business income was earned by selling books, and organising paid seminars and meetings.

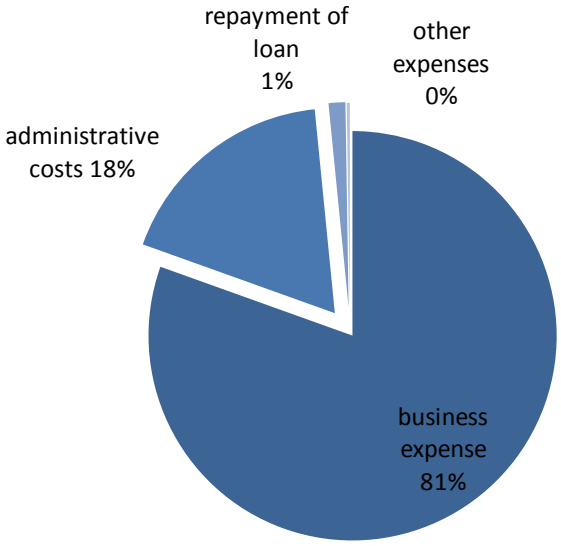
[20] 1 Japanese Yen =£ 0.004886 and £1 = 204.665 Japanese Yen, on 1st April 2006 (Currency Converter for 164 Currencies, http://www.oanda.com/convert/classic)

Figure 10.1: Income in the 2006 fiscal year (ESD-J, 2007)



membership fees	2,719,000 Yen
business income	12,925,912 Yen
funding	11,478,000 Yen
Donations	746,610 Yen
Other income	847,037 Yen
Total	28,716,559 Yen

Figure 10.2: Expenditure in the 2006 fiscal year (ESD-J, 2007)



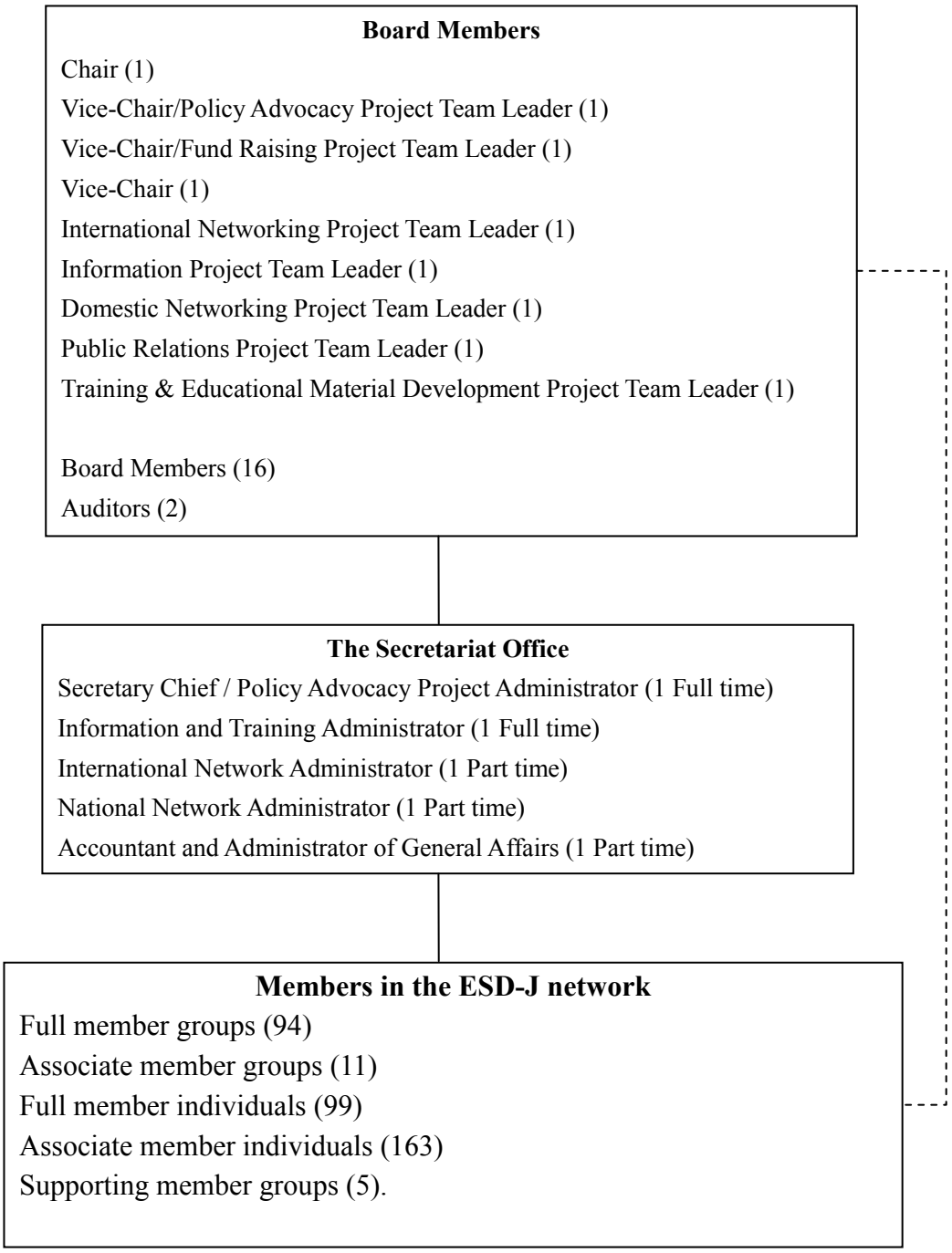
business expenses	30,299,933 Yen
administrative costs	6,764,314 Yen
repayment of loan	500,000 Yen
other expenses	96,377 Yen
total	37,660,624 Yen

The members in the ESD-J is organised in a hierarchical way. Firstly, the ESD-J board of directors consists of a chair, Professor Osamu Abe, who is also a director of the "Education for Sustainable Development Research Centre" in Rikkyo University in Tokyo, and 3

vice-chairs and other members of the board from: universities, NGOs and other partnership organisations. Secondly, the secretariat office members include: two full-time staff, three part-time staff, one internee and a number of volunteers. The office is located in the business district of Shibuya in Tokyo, along with: other well-known environmental NGOs, the environmental funding council and the UN University. Also, the ESD-J network includes 94 organisations, including: NGOs, companies, schools, universities, colleges and local authorities, as of 2006 March (ESD-J, 2006a). The organisation of the ESD-J can be described in the following figure (Figure 10.3).

There are a number of complexities and difficulties in the management of the organisation. Firstly, as seen in Figure 10.3, the large number of board members were involved and the individuals and organisation participated in the network; however, the people engage in full-time base are only two: Secretary Chief and another administrator. That is the other people are engaged or working full time in the other organisation such as university, local environmental NGO, research institutes and so on. Also the people involved in the ESD-J were located all over Japan. The other complicated issues is that a number of organisations in the ESD-J network are home ground organisations of the members of the board, This might influence the way of implementing practice in the ESD-J which discussed later.

Figure 10.3: The Organisation of the ESD-J (As of the 2006 fiscal year) (ESD-J, 2007)



(Note: the numbers in the brackets are the number of people/organisation)

The mission of the ESD-J is stated as:

- To create networks enabling NGOs, etc., in different fields to complement each other's activities for the creation of a sustainable society;
- To play a role as a counterpart to the Japanese government by advocating policy proposals and collaborating in policy implementation aimed at encouraging citizens and NGOs to form partnerships with the government, local authorities, international organizations and educational institutions in order to realize substantive ESD in Japan and overseas;
- To strengthen the framework that enables NGOs and other groups in Japan to actively participate in the creation of a sustainable society through school and community education, community development activities, etc;
- To communicate with international partners as a Japanese contact point for the DESD (UN Decade for Education for Sustainable Development);
- To develop training schemes for NGO staff in Japan to enable them to participate in international policy decision processes;
- To promote measures that enable Japanese NGOs to deliver project proposals to international bodies (ESD-J, http://www.esd-j.org/en/whatsesdj/mission.html, English in original).

That is, the main activities which the ESD-J is taking forward are: international networking, especially in the Asian-Pacific Region; national networking and support for exchanges; policy advocacy and research; information gathering/sharing and publications; fostering training and promulgation/education and working with companies and the government (ESD-J, http://www.esd-j.org/en/whatsesdj/). The activities were separated into several operational groups such as: policy, research and advocacy; empowering local communities;

developing international network.

The relationship between the government and the ESD-J is described by ESD-J as "counterpart", in that both parties play an equal role (Ninomiya-Lim, 2005) .Even though the organisation relies financially on the government for funding, it maintains autonomy and responsibility, to some extent. Although each individual and NGO is a member of the ESD-J network, and has a counterpart relationship, they have separate financing and autonomy over their special field of interest.

10.3 The Theoretical Perspective: the ESD-J's view of education for sustainable development

The phrase "education for sustainable development" is translated from "Jizoku kanouna kaihatsu no tameno kyouiku" in Japanese, but it is often expressed as "ESD" in the national literature. Unfamiliarity with this term amongst the populous is one of the challenges faced by those promoting it in Japan (Interview transcript 2.1). It is also difficult to describe the concept of education for sustainable development in brief terms (Box 10.1) and therefore, the ESD-J has attempted to overcome this by adopting such slogans as: "Creating education that builds a better future" (ESD-J, http://www.esd-j.org/) and "Raising people who can build the future" (ESD-J, 2005).

Box 10.1: The ESD-J's concepts of 'sustainable development' and 'education for sustainable development' (ESD-J, http://www.esd-j.org/e/whatsesd/whatsesd.php, English in the original)

Sustainable development

In order to solve the various problems we face and build the kind of society where everyone, including future generations, can live with a sense of security, we need to pursue a new kind of "development" in which the emphasis is on ensuring social justice and protecting the natural environment. The realization of what has come to be known as "sustainable development" is an urgent task facing the whole of humanity.

"Sustainable development" guarantees a democratic social system in which everyone is able to participate and an economic system that takes into account any impact on society and the environment, and respects the uniqueness of individual cultures. At the same time, it creates a just and plentiful future by protecting human rights, building peace, fostering understanding between different cultures, promoting health, conserving natural resources, preventing disasters, reducing poverty, and encouraging corporate responsibility.

Education for sustainable development = ESD

In order to realize through sustainable development a future in which we can all live with a greater sense of security, each and every one of us must cooperate and combine forces in an effort to solve the plethora of problems we face. ESD refers to education that empowers people for tackling these problems that lie between us and such a future.

ESD is education that we all need to become involved in, not just at school, but in our regions, communities, and every other imaginable situation. As well, above all, it is vital that ESD is carried out in a way that suits the actual circumstances of each community or individual. Various forms of ESD are already being implemented in a range of locations both in Japan and overseas. We are all capable of playing a leading role in building a better future, and so it is up to us to ensure that even better forms of ESD continue to spread around the world and that sustainable development becomes a reality.

Though the slogan can be interpreted in various ways, their concept of education for sustainable development has clearly been influenced by the socially-critical view of environmental education. For example, the discourse can be seen above, such phrases as: "we need to pursue a new kind of 'development'", "a democratic social system in which everyone is able to participate and an economic system that takes into account any impact on society and the environment" and "ESD refers to education that empowers people…".

Moreover, Fien's book "Education for Sustainable Development" was translated into Japanese and published in 2001 (Fien, 2001 translated by Ishikawa et al.), and ever since it has been an influential text in the field of environmental education. This influence is also evident in the ESD-J organisation's staff, in that there are two staff who did masters degrees under Fien's supervision at a university in Australia.

The ESD-J also has also been attempting to create a common framework for education for sustainable development, by working with other educational initiatives, as seen in Figure 10.4. Moreover, to this end, in 2006 ESD-J invited experts from different educational fields to build a common 'scenario' for educating for sustainable development and held a series of five workshops.

Figure 10.4: the Essence of ESD (ESD-J, http://www.esd-j.org/e/whatsesd/whatsesd.php, ESD-J 2006b, English in original)

In this series of workshops, about education for sustainable development, 19 experts participated from different fields and organisations/associations related to areas within Japan such as: energy, environmental education, outdoor education, nature conservation, bird-watching, boy-scouting, girl-scouting, social welfare, human rights, peace, gender

rights, agriculture and fishery, weather. Each of the participants described their own "big scenario" through discussing the history and working practices related to their education mission and explored how they could introduce education for sustainable development to their own area of work. Once they had shared their own educational expertise with others, the participants divided into smaller groups to design "small learning scenarios", which would guide the learning programme for education for sustainable development.

Following the programme of workshops, one participant suggested that the word 'scenario' had not articulated what they had done:

> "ESD is a very attractive concept but it does not mean ESD is superior to conventional education. Rather, ESD has a major weakness in that it does not have its own theory and practice because it is new. That is why I would rather not [call this making 'scenarios'] but I think the correct image is "carrying *mikoshi* with everyone" which means working to create new methods and movement for ESD while running towards achieving the purposes and values of ESD" (ESD-J, 2006, p.4, Translated from Japanese by the author)

A Mikoshi is a small decorated wooden structure which is used as a portable shrine in the Shinto religion (Figure 10.5). The Mikoshi is respected because it contains the essence of God. During a traditional festival, usually held in the autumn, towns people carry mikoshi throughout the town, and the shrine apparently follows a pathway determined by the crowd. The participant's comments appear to imply that ESD is a symbol that has to be shouldered jointly. This metaphor is consonant with the essence of ESD given in Figure 10.4.

Figure 10.5: Mikoshi (Fujiyoshida City Official Website, http://www.city.fujiyoshida.yamanashi.jp/div/english/html/firefest2.html)

This series of workshops was considered the first step in a learning process and did not have the goal of drawing up a definitive plan for education for sustainable development. That is, the report from these workshops was disseminated in order to share the collaborative learning that had taken place.

10.4 The Practice in the ESD-J: Network learning

Amongst a number of activities the ESD-J is undertaking, this section focused on their practice related to education in the ESD-J. The ESD-J's strategy is to take the role of being the central "hub" for networking (Ninomiya-Lim, 2006, p.263). More specifically it tells us that:

> "While the Decade brings significant opportunities for us in Japan to reorient our learning and society toward sustainability, such opportunities cannot be seized effectively unless there is appropriate networking and coordination of existing

> practices and forces. The Japan Council on the UNDESD, or ESD-J, was launched in 2003 to take this role as a hub to network NGOs and individuals and synergise their efforts." (Ninomiya-Lim, 2006, p.263, English in original)

The organisation's board members come from different areas of Japan as mentioned earlier, and according to the one of the vice-chairs (Interview transcript 3.4), in the first few years, ESD-J was on the whole managed by the board members who frequently had meetings. At that time they were able to collaborate to decide on the direction that the organisation was to take, as they were not excessively busy with other matters. However, more recently, many jobs have been dispersed amongst the boad members and the Secretariat staff has been left in charge of the management of the ESD-J because of the cost of constantly summoning directors from all over the country. Although the work of the Secretariat was appreciated, one of the board members criticised the consequences of this centralisation for the ESD-J:

> "I have read the text book about ESD recently published by ESD-J but umm…What did you think? [Interviewer: what did *you* think?] I think this is not clear at all. The quality is not good but we cannot complain because the cost of book is very cheap. I think this has just been created by a few people in Tokyo." (Interview transcript 3.4)
>
> "The ESD-J directors' meetings are mostly held in Tokyo. For me it is very difficult to attend because of money and time. I feel like 'you [Tokyo people] can do what ever you like'… In the beginning of establishing the network, they gave some financial support to local directors but now it's difficult to finance." (Interview transcript 3.4)

The finance and shortage of the staff is a serious issue in the ESD-J. Also since the large number of board members are involved who work voluntarily, it has became difficult to

make consensus amongst the members.

10.4.1 The dissemination of good practice

There are a number of NGOs participating in the network of the ESD-J. Some of them actively engage in it and disseminate their activities, whilst others passively participate and learn second hand from the activists. The ESD-J attempts to collect examples of 'good practice' by NGOs and to use these to develop a strategy for education for sustainable development. The two examples introduced below are influential practices for the ESD-J since those each organisation is directed by one of the board members in the ESD-J, and their activities have also influenced to the ESD-J's practice. Also those two organisations were recommended by the staff in the ESD-J to the researcher to visit.

Example One: Okayama UNESCO Association in Okayama

One of the ESD-J board members leads the Okayama UNESCO Association, which is located in Okayama City in western Japan. This association is well patronised by different groups of people, such as: principals, teachers, leaders in residents' associations, women associations and interested students. One of the main activities in the association is the environmental assessment of the local environment, through the involvement of local people. The board member admitted that the key factor for success hinged on the collaboration with the city mayor, as this leader has dedicated himself to environmental education and education for sustainable development. Okayama City also has been a paid up member of the ESD-J, following a recommendation by the mayor.

Junior high school students and teachers, who enthusiastically engaged in this association, mentioned they learned a lot through the activities. One of the students said:

> "In Okayama UNESCO association, a number of people holding a variety of positions participated. Primary school children, junior high school and high school students, university students, teachers, social workers...I cannot count them all, but among those I am thankful to people from the: block association, elder people's association, and women's association. Because they taught us about the history of our local area, when we consider the data [they collected] we can into account this local history and culture" (Interview transcript 3.4)

This association introduced the concept of education for sustainable development and uses this term, but however, the focus is still on environmental education. The director himself is concerned with the concept of education for sustainable development:

> "ESD has been derived from a variety of initiatives, such as: Agenda 21 and Education for All. As a consequence of being involved in too many campaigns, our message has become somewhat diluted. To put it the other way around, the focus is blurred and became like 'make the Earth better'. So what on earth is this programme about?.... It included everything so in the end it became nothing special. I think there is a problem with the conceptualisation. I think ESD is too conceptual and not practical." (Interview transcript 3.4)

The association has had a successful history in empowering the local community through environmental education. In this association, this significant level of success has been down to the commitment of local people, who support the initiative of the mayor. His leadership encouraged local people to become engaged in the environmental education programme. The director mentioned this top-down process of enacting education for sustainable development in Okayama City:

> "The top-down approach is frequently criticised, but important things and complicated things need to implemented top-down. If it's an easy thing, there is a way to do it from bottom-up. But complicated things like ESD are difficult to do in this bottom-up way. That is why it cannot spread widely." (Interview transcript 3.4)

One of the challenges they are facing now is the retirement of the mayor and thus losing his pragmatic leadership.

Example Two: Citizens Environmental Foundation in Kyoto

Here is another story from Kyoto City, in the central Japan. One of the board members in the ESD-J also leads a well-known NGO in Kyoto, which is dedicated to campaigning for green consumerism and building ecological cities. In 2002, the NGO started to hold an "Eco-City Competition", inspired by a similar event run by NGOs in Germany, which was won by the city of Freiburg. The competition is about measuring holistic environmental practice in municipalities and is participated in voluntarily by them. The number of participants has been successfully growing every year. In 2006, 75 out of a total number of 2170 municipalities in Japan participated. The purpose of the competition, is not only to measure the municipalities' performance and to rank them, but also to exchange good practice and raise the awareness of local people. For a number of municipalities, participating in this competition is itself a learning process and comments like the following are common (which documented by the organisation):

> "It [the competition] assessed not only the 'narrow-sense' of the environmental aspect of the municipality, but also it influenced the way we ran the city as a whole.—Environmental Officer in Tajimi City";

> "The contest gave us the opportunity to choose what image we should aim at for the municipality—Environmental Officer in Anjo city" (Citizens Environmental Foundation, http://www.kankyoshimin.org/jp/mission/ecocity/ecocap/index.html, Translated from Japanese by the author)

Such spin-offs as these, coming from the holding of the Eco-city Competitions, provided avenues for the development of education for sustainable development. Previously people were unclear how to introduce such a complex concept into the wider arena. This problem was highlighted by the director of ESD-J in the following statement:

> "ESD is a difficult concept to introduce into Japan… Perhaps we need to look at the development issues in the third world for education for sustainable development. I heard about a lot of good programmes in German schools, which have tried to engage with this issue by involving themselves with the schools in the third world." (Interview transcript 10.5)

He has been interested in and influenced by environmental practice in Germany and through this enlightenment has been trying to promoting the creation of indicators for education for sustainable development and an alternative assessment system (ESD-J, 2006).

There are many other NGOs in the network of the ESD-J. As seen in the two examples above, a number of them have taken action towards education for sustainable development, though they have struggled to distinguish between environmental education and education for sustainable development. Regardless of how they have been addressing environmental education and education for sustainable development, the focus has increasingly become about empowering local communities, rather than formal education. This is because formal

education is highly centralised and strictly prescribed by the Ministry of Education and thus is difficult to find space to modify school agendas.

In the two example above, the success which documented by each organisation were featured in the top-down approach by the local authority (Example one) and also the encouraging detail regulations by the form of the competition (Example two). More importantly, the ESD-J has featured these examples as exemplary case and disseminated to the network.

10.4.2 Networking of local municipalities

The ESD-J has also been commissioned a project 'The UN DESD promotion project', which was started in 2006. The project was initiated and funded by the Ministry of the Environment. In the project, every fiscal year, four to ten local municipalities (cities/towns/villages) are selected as a model, in order to focus on building the structure for sustainable communities for two years, taking into account their local conditions and attributes. The experiences are shared between these model municipalities and also they are expected to stimulate and encourage neighbouring municipalities after the project has finished. Ten municipalities in 2006 and four areas in 2007, were selected and undertook these projects. The role of the ESD-J is that of organising supporting and monitoring learning in the local areas. At the time of conducting this case study, the projects had only just started and so data on their outcomes was unavailable.

10.4.3 Networking with Asian countries

In terms of international networking, the ESD-J has attempted to construct a "loose network" with the different local NGOs in other Asian countries and to build the concept of education for sustainable development from the bottom up (Interview transcript 10.1).

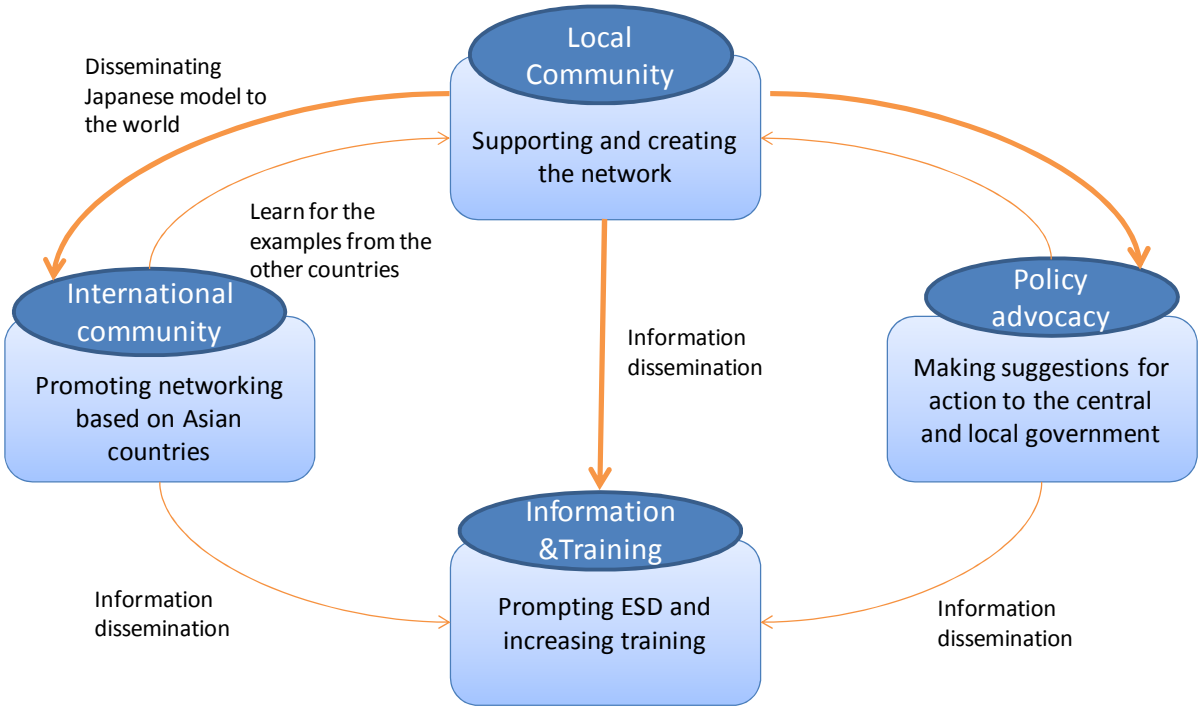
However, the ESD-J administrative staff (Interview transcript 10.1) mentioned that these NGOs had requested more leadership from the ESD-J, although the staff were trying to encourage them to develop their own appropriate concepts, independently. In the end, the loose network did not work and achieving a suitable balance of the top-down and bottom-up approaches remains a sensitive and difficult issue in building an effective international network. However, the ESD-J has continued to insist that international ESD is constructed in a location specific, bottom-up way.

In another project, in 2006-2007, the ESD-J has been conducting the "Asia Good ESD Practice Research Project (AGEPP)" (funded by the Toyota Foundation), to collect and share good practice in other countries in the Asia-Pacific area, such as: China, Korea, the Philippines, Nepal, India and Indonesia. The information from this has been compiled in English and placed on the website, so as to reach to the widest possible audience.

10.5 Contribution in a Wider Policy Context

It is difficult to evaluate the contribution of the ESD-J, as both the UN DESD and have only recently started their work. However, the ESD-J has produced the following figure (Figure 10.6) to illustrate their contribution to society, i.e. their role in the international community and policy advocacy.

Figure 10.6: Image of the ESD-J's activities (ESD-J, http://www.esd-j.org/j/esdj/esdj.php, Translated from Japanese by the author)



With regards to the international community, they have attempted to aggregate good examples of practice from local communities in Japan and translated these into English, for publication on their website. Also, as mentioned in the section 10.4.3, the ESD-J has been collecting exemplary cases in Asian countries and similarly has translated them into English for wider dissemination. As for policy advocacy, the organisation is actively asking for policy suggestions from its own members and the general public. They have lobbied ministers, and asked official questions by corresponding with the political parties, with aim of promoting education for sustainable development.

10.6 Summary of Case Study Two

This chapter has reported a case study of the Japan Council on the UN Decade of Education

for Sustainable Development (ESD-J). As has been presented its role is to promote the UN Decade of Education for Sustainable Development, at all educational levels. They have focused on activities with local NGOs and local government, the formal education system is highly centralised and thus offers few opportunities for engaging in new initiatives. The ESD-J has embedded within its approach the socially critical view of environmental education, to some extent. Moreover, it has also supported bottom-up activities in local communities in Japan and other Asian countries. The contribution cannot be fully evaluated, as yet, because the UN Decade and the ESD-J have just started to carry out their mission.

Chapter 11

Case Study Three – the Schumacher College:

A College for Deep Ecological Learning in the UK

This chapter reports on a case study at the Schumacher College in the UK, a college for transformative learning for sustainable living. Schumacher College is located on the Dartington Hall Estate in the south west of England. In accordance with the format for reporting case studies (See Chapter 8), firstly the background of this case study is presented[21] (11.1). This is followed by general information about the college (11.2), the theoretical perspective (11.3), practice (11.4) and contribution to a wider policy context (11.5). Regarding the section on practice (11.4), this is divided into sub-sections by the scope of practices in the College.

11.1 Background: Countryside in the UK and the Foundation of the College

The UK is a country that has become concerned about the conservation of nature, after long periods of its devastation caused by cultivation and industrialisation. For example, the National Trust, which is a leading charity founded by philanthropists in the 19th century in the UK, has protected larges areas of the countryside from unrestrained development and industrialisation. Its philosophies and activities spread to the other countries. Currently the organisation is conserving more than 300 historical buildings and gardens, 250,000 hectares of land, and 709 miles of coastline and its membership has risen to 3.56 million (National Trust, 2008).

[21] Note that this section is not derived from data but the introduction of the background to the case study.

The UK countryside conservation movement had influenced to environmental education in the UK (Sterling, 1992). In particular, in the 1970s, owing to the negative impacts of development and the lack of a comprehensive environmental perspective for dealing with them, a number of groups began to take action on conservation and protection of the countryside. A series of conferences called "The Countryside in 1970" were initiated by the Duke of Edinburgh. These conferences brought educationalists and conservationists together for the first time in the UK, and from them education emerged as having an important role in achieving substantial countryside conservation (Sterling, 1992, p.2).

The location of this case study, Dartington Hall Estate in Devon was also bought for a rural regeneration. After restoring the medieval buildings, in 1925 the owners established the place as multi-cultural estate, particularly for: the arts, ecology, and social justice. Currently the Dartington Hall estate is a 1,200 acre mixture of arable and pastoral farmland, woodland, residential accommodation and commercial ventures, such as a: shop, restaurant, theatre, hall, guest house, school and a number of other buildings. The Schumacher College was established in 1991 as an integral part of this Dartington Hall Estate and the finance of the college was partly provided by the estate.

Satish Kumar is one of the key founders of the college. He is an Indian monk inspired by Gandhian thought (anti-nuclear and anti-violence advocate or "original green 'hippy' activist" (Guardian Blog, 16 Jan 2008, http://www.guardian.co.uk/environment/ ethicallivingblog/2008/jan/16/whatpartdoesspiritualitypl). He and his company walked for 8,000 miles from Washington to Moscow without any money and equipment, in order to campaign against the nuclear-armed countries. In 1973 he settled in Hartland in Devon (Interview transcript 3.2, Guardian, January 16 2008) and subsequently became involved in the setting-up of the Schumacher College with two other foundering members. The college

was opened in 1991. According to Kumar (Interview transcript 3.2), the college was named after E.F. Schumacher, who was famous in the UK for his environmental perspective "Small is Beautiful" (Schumacher, 1973) and suitable for representing the aim of the College at that time. Since its establishment, Kumar has overseen college life and taken the role of programme director. At the same time, the college has been grown and attracting many other thinkers.

11.2 The Organisational Information: the Schumacher College

The college holds various residential short courses and a masters course: MSc in Holistic Science, which is awarded by the University of Plymouth. In addition, a new certificate course "Schumacher Certificate in Education" was launched in 2007. These courses include a variety of topics related to deep ecology and sustainability. The college attempts to embed a sustainable lifestyle, by introducing communal life, which involves: learning, cooking, eating and cleaning together. Details on the courses will be presented in a later section.

The staff in the college consist of: directors, academic/administrative staff, visiting teachers, facilitators, helpers, a house manager, kitchen managers and a gardener. The list of administrative staff is detailed in Table 11.1. Facilitators for short courses are usually recommended by experienced participants. Helpers are also volunteered workers offered by participants of previous courses, local people and acquaintance of the college. There were 2 facilitators and 5 helpers for the course in which this researcher participated..

Table 11.1: Staff in the Schumacher College (as of July 2007)

Director of the Schumacher College[22]	Kitchen Manager
PA to the Director	Kitchen Manager
Programme Director	Publicity Coordinator
Programme Coordinator	Gardener
MSc Coordinator	Researcher
Administrator	Researcher
House Manager	Kitchen Assistant
MSc Tutor	MSc Administrator
Assistant Director	

Finance for the college comes from the course fees, which vary according to the length of the course. For example, Course fees are various depend on the course; however, generally the course costs 900 pounds for one week to 1800 pounds for three weeks (for individuals). In addition, to remain economically viable, the college also relies on funds from the Dartington Estate, the University of Plymouth and other sources.

11.3 The Theoretical Perspective: Gaia theory and deep ecology

According to Harding (Interview transcript 3.5), a resident teacher in the college, there is no fixed philosophy or dogma in the college, but there are some guiding principles: deep ecology—all life has intrinsic value; and Gaia theory—we are members of the Gaian community, not the steward or masters or controllers and we need to learn a way for humans, particularly Westerners, to live a harmony with nature.

[22] In 2008, the position of Director of Schumacher College was changed to 'Director of Sustainability (in Dartington) and Schumacher College Manager,'. Sustainability became one of the core activities on the Dartington Estate, and. this position oversees the sustainability activity in Dartington Estate, not only Schumacher College. (Schumacher College, 20 Aug 2008, Email).

Thus, Gaia theory and deep ecology are key subjects in any course at the College and they are taught by Harding. His background is that he received a Doctorate in Ecology at the University of Oxford and then taught and conducted research in Costa Rica. After that, he came to the Schumacher College and has been teaching there ever since. He also works with deep ecologists, such as Arne Naess and James Lovelock. He recently published the book "Animate Earth" (Harding, 2006), which explores the integration between science and intuition.

Gaia theory posits that the earth is a living and self-organising system. Lovelock (1965) developed the formulation of the "Gaia Hypothesis" during his work for NASA on methods for detecting life on Mars. Initially, his theory put forward the idea that the existence of certain combinations of chemicals might indicate that there is life other planets. Later, using the Greek goddess Gaia, he attempted to explain the earth as a complex self-regulating entity. However, although this view was widely accepted by environmentalists, it was not accepted by scientists, particularly some biologists.

Taking this forward, Harding (2006) has elaborated the Gaia theory by incorporating it with Naess's deep ecology. Deep ecology is a practice of the profound moment which integrates scientific thinking and intuitive thinking through questioning (Harding, 2006). Naess argued that we can connect with Gaia as a living entity by way of integrating science and intuition and we can respect the intrinsic value of the earth.

The other significant theme of learning in the college is the spiritual aspect of the environment and connection to the nature, which has been introduced by Satish Kumar. He has spent much time walking, in order to connect spiritually with nature and this was documented in a BBC TV programme, "Earth Pilgrim" (BBC TV, 2008). Quoting

Nietzsche's saying that one should never trust a thought that didn't come whilst walking, Kumar believes “when you walk, you are in touch with the earth, with nature, the wasps, the insects, everything. In a car or a train or a plane, you are disconnected. You walk to connect yourself.” (Guardian, 2008 Jan 16, http://www.guardian.co.uk/environment/2008/jan/16/ activists).

The main pedagogy of the Schumacher College has been driven by: Gaia theory, deep ecology and spirituality. However, more recently, owing to financial pressures, their courses have been designed taking account of values in the outside world, and action has been taken to market the courses more widely. For example, as seen in Box 11.1 in the next section, some courses are now targeted at businesses and policy makers.

11.4 The Practice in the College

As mentioned earlier, there are various titles of short courses throughout the year, one master course “MSc holistic science” and one certificate course “Certificate in Education for Sustainability” (as of 2007). All of the courses are residential and communal life in the college is a part of the learning experience.

11.4.1 Life in the college

The Schumacher College is a residential school and this is the most important part of the learning process. Each day starts with the option of meditation before breakfast, which is facilitated by Kumar or other members of staff. Breakfast is prepared by the catering staff and cleared up by each resident. After breakfast, there is a brief meeting for everyone, which starts with the reading of a poem and then there is an exchange of necessary information about the coming day, between the staff and the course participants. Following

the meeting, the course participants help with different daily tasks according to a rota. These tasks include: preparing food with kitchen staff, cleaning the inside of the building with a house keeper, and helping with the gardening.

The rest of each weekday morning is devoted to working with the teacher(s). Lectures, discussions and small group discussions are used as learning methods and these activities take place not only inside, but also outside in the garden. Lunch is prepared by the catering staff and helpers. In the afternoons the options provided may include: field trips to the coast or Dartmoor, a walk in the Estate, craft work (the new craft room was under construction at the time of this case study) and private study. This is free optional time for the participants. However, one of the group has to start cooking dinner towards the end of the afternoon.

The food at the college is vegetarian. Each Monday there is an Indian food day headed by Kumar. On the other weekdays the catering staff help the participants to cook various types of vegetarian food. On weekends the course members have the opportunity to create the menu themselves. For this occasion, a lot of international participants and students have been cooking and introducing the vegetarian food in their own countries. The catering staff try to use local and organic vegetables or the vegetables grown in the college garden, as much as possible. In addition, they try to minimise the use of plastic containers: for example, they make soya milk from soya beans, in order to avoid buying it in unnecessary plastic bottles. Also the cakes and cookies served at tea time are handmade by the catering staff. Most of the food waste is composted in the garden.

In the evenings a variety of talks and informal meetings are on offer and there is a bar for socialising. Usually, on Tuesdays there is an opportunity for some participants to give presentations on topics that they are interested in. Wednesday evenings are “open evenings”,

to which local people in Devon are invited to listen to a teacher's talk and meet the participants on the course. On Friday evenings there is usually a "soiree", a home-grown party, during which participants are encouraged to perform, by: playing instruments, singing, dancing, telling stories, reading original poems and so on.

11.4.2 Short courses in the college

There are a number of short courses throughout the year (Box 11.1) and depending on the topic of the course, guest teachers are sometimes invited. Each course lasts one to four weeks and it is possible for these to count for credit with universities.

Box 11.1: Short Course Programme at the Schumacher College (Schumacher College Brochure a, Schumacher College Brochure b)

Course Programme 2006/2007

Art in Place: Linking art to ecology (September 10-22, 2006)

Animate Earth: Science, Psyche and Gaia (October 8-13, 2006)

Imagination & Intuition: Shamanic influences in Western Culture (October 15-20, 2006)

Activism in Later Life: Sharing the wisdom; serving the earth (October 22- November 3, 2006)

Roots of Learning: The role of education in the 21st Century (Novermber 5-10, 2006)

Life after Oil: Breaking the habit (November 12-24, 2006)

Solstice Retreat: Community, symbolism and ritual (December 18-22, 2006)

Science & Spirituality: Creating a new balance (January 7-26, 2007)

Climate Change: Seeing the whole picture (February 4-23, 2007)

Roots of Learning: Education as a springboard for transformation (February 2- March 2, 2007)

Indigenous Peoples & the Natural World: Is ancient wisdom relevant to the modern world? (March 4-23, 2007)

Illness to Wellness: Integrative healthcare in the community (March 25-30, 2007)

Creative Partnerships: Unleashing Collaborative power in the workplace (April 15-20, 2007)

Designing with Nature: Forms of wholeness (May 6-25, 2007)

The New Economics: From growth to well-being (June 3-22, 2007)

Earth & the Sacred: The personal and the planetary (July1-20, 2007)

Course Programme 2007/2008

Towards Urban Sustainability: Cities for the future (September 10-21, 2007)

Engaging with the politics of climate change (October 4-8, 2007)

Developing low-carbon food policies (October 11-15, 2007)

Business responses to climate change (October 18-22, 2007)

Food for thought: Transforming the food culture of universities (October 29-November 2, 2007)

Roots of Learning: Approaches to holistic and transformative learning (November 5-9, 2007)

Can the Earth Survive Capitalism? (January 7-18, 2008)

Designing for Sustainability: System, ethics and beauty (February 4-22, 2008)

Roots of Learning: Education for community and sustainability (February 25-29, 2008)

Development: What Next? (March3-20, 2008)

Tackling Climate Change at Home (April 7-11, 2008)

Inspired Leadership: Seeing organizations as living systems (April 21-25, 2008)

Reconnecting with Nature as Healer (May 5-16, 2008)

Creating Nature: Art in the landscape (May 26-June 6, 2008)

Soul of Science (June 16-27, 2008)

Sacred Activism (July 14-25, 2008)

There are from 10 to 30 participants on each course and the age of the participants varies from 20 to 80 years old. Moreover, they come from different countries all over the world, for example: Brazil, Mexico, Canada, America, Holland, Australia, South Africa and so on. However, according to an assistant director (Interview transcript 3.1), there have been few participants from developing countries. This is for financial reasons and also because the college marketing relies heavily on communication through the social networks of the previous participants.

In addition the college has been repeatedly visited by the same participants, who like to return to attend further short courses. Some facilitators and helpers have attend courses initially and then come back in this guiding role. A number of people expressed their enthusiasm for the college, saying things such as "this place is magical" (Field note 2 July 2007) or "I fell in love with this place" (Field note 3 July 2007, Interview transcript 3.4). Another participant stated that "When I arrived, I felt as if I had been here before. This is the place that I really enjoy and want to come back again and again." (Interview script 3.6). For example, a woman (Interview transcript 3.4), who used to be a teacher in formal education, lost her passion for teaching environmental education in a school, because she found it difficult to engage with students who were not interested in the environment. She found herself comfortable in this kind of deep ecological school; however she mentioned the Schumacher College as a quite special institution compare to similar ones she attended before (Interview transcript 3.4):

> "I went to the one in Nova Scotia. They bought land with a farm on it, and built teaching facilities so we can do workshops … and composting toilet…I like both but there is something about nature in Britain that is very magical….I think, I have a

> theory that people have been on this island for thousands and thousands of years and every little bit of space has had human attention and intention put into it. Canada has beautiful wilderness and I love it and it's just the most incredible place in the world, but still there is something when I come to Britain, particularly to this College…This country has a beauty of its own and quite magical like I understand why the stories of fairies came from here…since people have been interacting with nature for so long… In North America, people weren't dense enough to have an impact on nature."

Another participant, who was a lecturer in management education, also agreed about the place and the setting of the college. She (Interview transcript 3.4) emphasised "a place is important if we are planning to do transformative learning". She also reflected on the first course she had undertaken and said:

> "The course was OK, nothing exceptional. But, you know, the experience of being here in the beautiful college with that group of people [who have common interests and aspirations] and what we do here is not only teaching and lecturing, but everyday life—work and field trips and so on—I like it very much." (Interview transcript 3.6)

Though she commented the "the course was OK" regarding the first she took, she said that she liked the next one that she attended: "On the second course I attended, the teacher was great. We didn't want her to stop. We could go on and on listening to her talk." (Interview transcript 3.7)

An 80 year-old participant (Field note 5 July 2007) pointed out a different reason for liking

the college. She was retired, but interested in the environmental issues and values and she had been attending a number of seminars and workshops. She (Field note 5 July 2007) had come to the college for the first time and mentioned that “I like the atmosphere in the college because it doesn’t matter where I sit or where you sit. Everybody is equal.”. Also, during the course, some young participants (Field note 5 July 2007) expressed their appreciation for there being such a senior person at the college and their gratitude for being able to learn with mixed generations of people (Field note 6 July 2007). Another participant talked about equality in the college and said “No matter where you come from…this place is very respectful and everybody interacts with respect in this college” (Field note 5 July 2007)

A further participant, who was from outside the UK, took a gap year after finishing high school, before entering a university. He had a disability which made it difficult to talk fluently, apart from when he was: singing, acting or reading something aloud. Even though he had these speech difficulties, there was an atmosphere in the college such that everyone had the patience to listen to him and wait for him to finish what he was saying. For him, the college was good opportunity to make decisions about his future. The Schumacher College was recommended by his uncle who was interested in deep ecology. He took the short course about nature and design, then after the course, he remained at the college as a helper, to support other participants for a couple of months. According to him, the experience of being in the college had widened his perspective. For example, before he came to the college, he had wanted to study architecture at a university. However by meeting a number of people with greater experience than him, he (Field note 3 July 2007) had come to realise “I am not a science or engineering person. I think I am a humanity person”. Now he wanted to study journalism or anthropology at a university.

Over all, most of the participants enjoyed the whole package of experience of "being in the college". However, regarding the teaching methods, a few participants expressed disappointment, to some extent. Some participants on the short courses mentioned there was too much input from the teachers and too few opportunities to discuss it (Field note 6 July 2007). A participant suggested there is a need for alternative attempt for accelerating learning (Interview transcript 3.6).

This is one of the key issues in terms of learning, according to the Assistant director (Interview transcript 3.1): transformative learning does not happen in one or two days, and it is different depending on the nature of the participants, course, and the situation. For example, participants attending a one week course really push themselves hard, so that their learning curve goes up really quickly. However, participants attending four week courses learn a little bit more slowly, because they think they have enough time to grasp the knowledge. In any courses, according to the director, the Schumacher College attempts to provide a positive leaning atmosphere.

11.4.3 Masters programme

The masters programme "MSc in Holistic Science" was set up in 1997 by Stephan Harding and Brian Goodwin, through the University of Plymouth. The aim of the programme is stated as:

> "Holistic Science advocates a participatory science of qualities, values and interactions, which underpins an ecological world view. Western scientific method is dominated by specialisation in disciplines and by 'reductionism' — the idea that natural phenomena can be explained and understood in terms of their smallest parts. The MSc in Holistic Science explores new transdisciplinary methodologies that go

beyond reductionism in understanding whole systems." (Schumacher College, http://www.schumachercollege.org.uk/courses/msc-holistic-science)

It is a full-time one year programme. The number of students is limited to a maximum of 13 every year, in order to create an intense learning community. The degree is awarded by the University of Plymouth but the actual teaching takes place in the college. It involves 3 core modules of intensive learning, from September to December. Afterwards, students have to choose two short courses from the options. At the end of the programme, from January onwards, they write their dissertation and for this the students have two supervisors: one from the University of Plymouth and one from the college. The dissertation subject matter is very flexible and can even be creative arts. However, in such a case there needs to be an academically rigorous component, which explains the relevance of such creativity. All of the master dissertations are examined by external examiners. Regular teachers involved in this masters course are shown in the following box (Box 11.2).

Box 11.2: Regular teachers involved in the MSc in Holistic Science (Schumacher College, http://www.schumachercollege.org.uk/teachers/)

- James Lovelock— an independent scientist, author, researcher, and environmentalist, known for developing the Gaia hypothesis, which explains that the Earth functions as a self-regulated organism.
- Rupert Sheldrake— biologist and biochemist and the author of 75 scientific books, such as "The Rebirth of Nature" and "Nature Grace" (with Matthew Fox), on topics such as animal and plant development and behaviour, memory, telepathy and perception.
- Francoise Wemelsfelder—a biologist specialising in animal behaviour and welfare and the philosophy of science, working at the Scottish Agricultural College in Edinburgh, to develop and lead an experimental research programme on the 'whole animal' assessment of animal welfare and suffering (Schumacher College, http://www.schumachercollege.org.uk/teachers/francoise-wemelsfelder)
- Henri Bortoft—physicist and philosopher who did research on the problem of wholeness in quantum physics, and wrote "The Wholeness of Nature: Goethe's Way Toward a Science of Conscious Participation in Nature" on Goethean science[23]

[23] Goethean science is also known as Holistic science. Goethean science is named after Johann Wolfgang von

- Craig Holdrege—a Goethean scientist, Director of the Nature Institute in New York. He has taught Life Sciences for many years in Germany and the USA and is the author of "Genetics and the Manipulation of Life: The Forgotten Factor of Context". (Schumacher College, http://www.schumachercollege.org.uk/teachers/craig-holdrege)
- Margaret Colquhoun—a Goethean biologist and Director of the Life Science Trust, which aims to explore the relationship between human beings and nature through art and science and their integration with one another. She has co-authored "New Eyes for Plants: A Workbook for Observing and Drawing Plants". (Schumacher College, http://www.schumachercollege.org.uk/teachers/margaret-colquhoun)
- Patrick Harpur—a hermetic philosopher, and the author of a number of books, including "The Philosopher's Secret Fire: A History of the Imagination", "Daimonic Reality: A Field Guide to the Otherworld, and Mercurius: The Marriage of Heaven and Hell". (Schumacher College, http://www.schumachercollege.org.uk/teachers/patrick-harpur)
- Patricia Shaw—an organisation theorist, Associate Director of the Complexity and Management Centre at the Business School of the University of Hertfordshire. She is the author of "Changing the Conversation in Organisations". (Schumacher College, http://www.schumachercollege.org.uk/teachers/patricia-shaw)
- Terry Irwin—a designer and design educator, currently a lecturer in the graduate programme for design at the University of Dundee and is a PhD researcher in their Centre for the Study of Natural Design. Her work focuses on how to develop more responsible and appropriate design processes and methodologies for traditionally trained designers and investigates the components of a holistic worldview and its implications for design. (Schumacher College, http://www.schumachercollege.org.uk/teachers/terry-irwin)
- Seaton Baxter—a natural designer and an honorary Professor in the School of Design, University of Dundee, where he is responsible for developing research skills and knowledge. (Schumacher College, http://www.schumachercollege.org.uk/teachers/seaton-baxter)
- Gideon Kossoff—a social ecologist/social theorist whose research focuses on the relationships between humans and the natural environment and humans and the built/designed world as the foundation for a sustainable society. Gideon served as programme administrator from 1988 until 2007 for Schumacher's MSc in Holistic Science and developed the extensive library, which includes over 6,500 volumes on topics, such as: Holistic Science, Hermeticism, philosophy/history of science, ecology, environmental psychology, ecological design etc. (Schumacher College, http://www.schumachercollege.org.uk/teachers/gideon-kossoff)

Students come from a wide range of professional and international backgrounds. So far, previous students' backgrounds have included: business, NGOs, ecological agriculture,

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Goethe, who was a well-known German poet. Goethe's scientific book Zur Farbenlehre (Theory of Colours) published in 1810 was referred to as an inspiring example by a number of holistic scientists.

psychology, medicine, dentistry, pharmacology, law and so on. According to the Masters Programme Director, there have been distinctive professional students compared to the British average masters students and they have been highly motivated and committed students. Roughly 50-60 students have graduated over the last 10 years. Students are coming from all over the world; though mostly they are from North America and Europe.

One masters student (Interview transcript 3.3) commented that in the core modules in the first four months were very intensive with small number of people so that he felt "heavy". He mentioned:

> "We needed to do the project…it was a group project. Everybody was doing a project together. The things that happen are because we live together, obviously, we spend a lot of time together… we eat together and we are in class together, we don't sleep together, but we spent a lot of time together. So we ended up the dynamics in the group that was quite heavy. We get very very close. We get to know people much faster than you would if you went to work or something like that. So for me, it was very interesting. I really enjoy that part."
>
> "(The researcher: What do you mean by 'heavy dynamics'?) I would be lying if I told you that nobody found it difficult. I really liked it. For me it was—I can almost say—not difficult at all. I think for many people, it was difficult, but I think most of the people enjoyed it"

For this masters programme communal living is not required, but recommended, particularly for first four months whilst taking the core modules. According to the MSc Director, this is of great significance in creating the learning community. The masters programme in the college generally received good feedback and met the students'

expectations (Interview transcript 3.5).

11.4.4 The Certificate in Education

The Schumacher Certificate in Education for Sustainability is a vocational programme in holistic, transformative, adult education – for educators, facilitators and change agents and is a one-year, part time action research programme. This certificate is not accredited by an external institution and is an independent course at the Schumacher College. It has recently started in 2007[24], with a focus on different teaching and learning methodologies of the Gandhian and holistic approaches, and life-long learning. The content of the programme is: introduction to different educational models; an overview of holistic learning and ideas of education for service; pedagogical methodologies; teaching and facilitation skills; leadership and presentation skills; networking; and knowledge and information relating to the practical aspects of setting up a school centre. The teachers and key references are shown in the following box (Box 11.3).

[24] At the time that the researcher was conducting the fieldwork, the certificate course had not yet started; however, the relevant data was added later.

Box 11.3 Contributors to the Schumacher Certificate in Education and Key References (Schumacher College, http://www.schumachercollege.org.uk/courses/certificate-in-education)

Contributors include:

Anthony Brown Ecosa Institute; **Karen Blincoe** Schumacher College and ICIS, International Centre for Creativity, Innovation and Sustainability; **Brian Goodwin, Stephan Harding, Satish Kumar and Toni Spencer** Schumacher College; **Anne Phillips; Stephen Sterling** CSF Plymouth University; **Professor John Wood** Goldsmiths College, University of London; **Sophy Banks, Rob Hopkins and Naresh Giangrande** Transition Towns Movement; **Professor Peter Reason** Bath University School of Management; **Chris Seeley** Bath University School of Management and Oxford Brookes University; **Susannah Darling Kahn** School of Movement Medicine; **Chris Nichols Ashridge; Pat Fleming; Tim Macartney and Jo Clark** Embercombe.

Beyond the visiting contributors and faculty, some key references are:

David Orr; Margaret Wheatley; Parker Palmer; Paolo Friere; Thomas Berry; Bell Hooks; Ed O'Sullivan; Joanna Macy; Otto Scharmer; Judi Marshall; John Heron; David Selby; Rabindranath Tagore; Vinoba Bhave; Donella Meadows; Ivan Illich; Bill Mollison; Shelley Sacks; Starhawk; David Bohm.

One of the students who participated in this certificate course said "For the first time in my life I can say that I experienced a transformative learning process. A process that started and I am sure it will continue for all my life." (Schumacher College, http://www.schumacher college.org.uk/courses/certificate-in-education). However, another student commented "Something I found a bit frustrating was the fact that the lecturers are delivering in the same conventional way, you know, time spent in lectures. It's very old-fashioned. I wasn't expecting to see here things that I saw in my university." (Interview transcript 3.7). This certificate course has just started and it is too early to say a lot about it, as compared with the well established structure of the short courses and the masters course.

11.5 In a Wider Context

Higher education has been becoming more business oriented in recent years. Though such an influence has not reached to the college yet, Harding (Interview transcript 3.5) expressed his concern about the outside pressure favouring the mechanistic language of education, such as 'education product' or 'education outcome'. The college has maintained a progressive form of education and environmental practice, compared to other education institutions. He argued forcefully that "we have to resist such a mechanistic language of education". However, the Assistant director (Interview transcript 3.1) thought they needed to consider the outside market and adopt the demand of learning from it.

Financial independence is one of the challenges, which the college has been attempting to succeed in achieving. Currently it is funded by the Dartington Estate and the University of Plymouth in order to supplement insufficient income. However, they hope to be financially independent from others and sustainable from their own resources. To this end, the college intends to create other courses in the future such as master programme in ecological design and certificate in green economics. Harding also said that if the short courses did not recruit sufficient people in the future, then they would shift their emphasis to longer programmes, such as masters and certificate degrees, as there appeared to be greater demand for these.

11.6 Summary of Case Study Three

This chapter has described the philosophy and practice in the Schumacher College in the UK. The college holds three types of courses, namely: short courses, a certificate course and a masters course. These courses are organised based on the ideas of deep ecology and Gaia Theory. It attracts a number of participants and students who echoes these ideas. Not only the content of the course, but the whole life in the college, the: surrounding nature,

historical buildings, communal living, task-sharing, open atmosphere of the staff and the participants, are all seen as constructive elements for creating the learning process.

Chapter 12

Case Study Four - Ikaruga Kousha:

Apprenticeship in a Shrine Carpenter Workshop in Japan

This chapter describes apprenticeship in shrine carpenter workshop in Japan. This case study focuses on Ikaruga Kousha in Japan, a company and/or apprentice's school. They build wooden architecture particularly a temple or a shrine which can be preserved for hundreds of years. Their traditional environmental knowledge about architecture and trees is obtained through apprenticeship which lasts 10 years. In this chapter, according to the format of reporting case study in this research (See Chapter 8), firstly it reports its background[25] (12.1), the general information of Ikaruga Kousha (12.2), its theoretical perspective (12.3), their practices (12.4) and a wider contribution to policy context (12.5). Note that the basic information related to Japan (geographical map, the name of area and so on) is forwarded to Appendix. Also Japanese literature and interview transcripts conducted in Japanese were translated by the researcher.

12.1 Background: Forestry in Japan and history of shrine carpenters

The current landscape of Japan, according to Ministry of Land, Infrastructure and Transport (2001), consists of 67.1% forest, 13.1% agricultural land, 4.7% dwelling area, 3.7% water and the rest of percentage is other places. Notably, the extent of the forest as a percentage of total area is as high as Finland and Sweden, which are well-known as forest countries, and yet Japan is not well-known as a forest country. Geographically most of the forest is located

[25] Note that this section is not derived from data but the introduction of the background to the case study.

in mountainous areas as seen in the photo below (Figure 12.1).

Figure 12.1: Wood-mountains[26] in Japan (Forestry Agency, http://www.rinya.maff.go.jp/seisaku/sesakusyoukai/kanbatu2/top.htm)

Although Japan achieved the high ratio of forest, actually the country is now the world's largest importer of wood. The cheap-cost timber such as from United States, Canada and Malaysia has been overwhelming the domestic timbers in Japan. The reason is that, since Japanese mountains are steep and it is difficult to transport trees, the costs become higher than the forestry in the other countries.

Currently the devastation of forest is a serious and urgent problem in Japan. Since thousands years ago, Japanese forest has been modified and has coevolved with the people; that is to say, the forest, especially the planted forest, is not wildness at all. The people have been trimming the trees in order to give enough sunlight and raise them strong and big. If nobody is going to take care of the forested mountain, the trees become weak and the water holding capacity will became low, and eventually it will cause natural disasters such as slides and

[26] The term mori (forest in Japanese language) is seldom used since it has an image of woodland in a plain field such as Black Forest in Germany. Instead, the term yama (mountain in Japanese language) is used equivalently as woods because woods were usually geographically located in mountains in Japan. To avoid the confusion, the term yama (mountain in Japanese language) is translated wood-mountain in this thesis.

flood. Japan has been rapidly losing the wisdom, knowledge and skills of using trees and managing forest that has succeeded since thousands of years ago. That is why the government and NGOs held a number of initiatives to encourage using wood (particularly trimmed trees) produced in Japan and to gain the holistic understanding the issue around tree and forestry in Japan.

Historically Japanese culture has been influenced by using wood. For example, Japanese traditional architecture used mostly wood. There are very many wooden temples and shrines, especially in Nara and Kyoto prefectures. Also the traditional crafts in different local areas have developed using local woods; for example, a cedar barrel in Akita prefecture, paulownia dressers in the Kantou and Chubu areas, and a lot of unique Japanese traditional papers in different areas. There used to be a number of carpenters and craftsmen who knew how to carve and joint (or process) wood depending on the characteristics of the trees and the characteristics of the weather—especially humidity—in Japan. For example, in Nihon Shoki (the Chronicles of Japan, an account of the origin of the country written in the 7th century and one of the oldest texts in Japan), it is written that Hinoki cypress is for making a holy place, cedar and cinnamon are for a ship, pine is for a coffin. At that time Japanese already knew the characteristics of different trees and how to use them.

Hinoki cypress[27], according to Japanese ancient history, has been used to build special buildings. It is a unique tree which is found only in Japan and Taiwan. It has a durable life, nice scent, and a fine quality. It is not only strong but it is also easy to carve. According to data from Kohara (1984 cited in Tanaka, 1997), Hinoki cypress increases in strength 200 years after it is cut down, which is why the ancient Japanese used it for significant buildings. The oldest wooden building in the world, Horyuji Temple, was built in the 7th century from

[27] It is called 'Chamaecyparis obtuse' in scientific name, 'Hinoki cypress' in English language, and 'Hinoki' in Japanese language. It is mainly distributed in Japan and Taiwan.

this wood. The columns of the temple were estimated to be more than 1000 years old when it was built. The person who decided to use this huge tree and build Horyuji Temple was Shotoku Taishi or Prince Shotoku; his image was found on the previous 10,000 yen note as he is held to be one of the greatest people in the history of the country. However, it is less well-known that there is a group of special carpenters who built this temple and passed down the knowledge in Japan to the present day—shrine carpenters[28].

Figure 12.2: Horyuji Temple (UNESCO, http://whc.unesco.org/en/list/660)

12.2 The Organisational Information: Ikaruga Kousha

According to some literature and a few documentary television programmes in Japan, temple carpenters who have preserved Horyuji Temple have preserved traditional knowledge. Particularly Tsunekazu Nishioka (1908-1995) was the in-house master carpenter served to Horyuji Temple. Nishioka was born in a family in which every man served the temple from generation to generation. He repaired the old buildings at Horyuji Temple and newly rebuilt many other temples including buildings in Horyuji Temple,

[28] This special carpenter is called "Miyadaiku" in Japanese—literally translated to shrine carpenter; however, historically the name of occupation used to be shrine/temple carpenter in Japanese (Nishioka 2001). They build a temple referred as a building of various forms of Buddhism as well as a shrine referred as a building of Shinto (Japanese animism). Therefore such carpenters do not commit to any particular religion as a group.

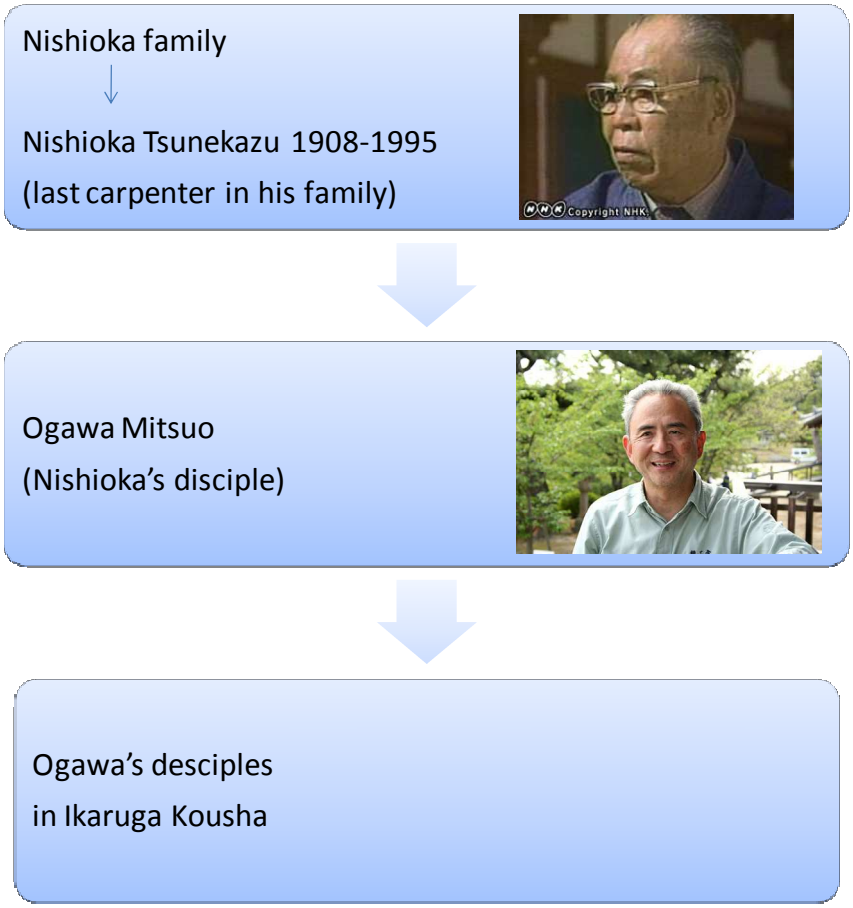
Honrinji Temple, and Yakushiji Temple. He received honours for his work from the government and has been recognised as the epitome of temple carpenters and the person who embodies wooden culture in Japan.

Nishioka did not force his children to become temple carpenters because of his experience of suffering from poverty for a long time. However, he has raised one disciple, Mitsuo Ogawa, who was fascinated by the architecture of Horyuji Temple and applied to apprentice with Nishioka. He succeeded to Nishioka's philosophy and knowledge and established a temple/shrine construction company—which is the only company—Ikaruga Kousha in order to transmit the knowledge to the future generation.

The company's first workshop was established in 1990 and located near Horyuji Temple in Nara; as of 2007 there were two more workshops in Tochigi prefecture. This is the only construction company that specialised in building temples/shrines with their traditional knowledge. The desirable apprenticeship period is 10 years since Ogawa is aiming at raising professional carpenters; as he said, "School teachers are thinking 2 or 3 years later. But we have to raise temple carpenters who can survive all their lives" (Interview script 4.1). About 20 people have completed 10 years of apprenticeship and about 70 people left earlier for various reasons. Since it was established, the company has built about 60 temples/shrines throughout Japan, especially on Honshu, Japan's main island.

Currently 17 trainees from 19 to 35 years of age are working in the main Tochigi workshop. They are all men (though three women have been trained as carpenters by Ikaruga Kousha in the past). They are not an indigenous group, but came from all over Japan to be trained, inspired by Nishioka's and Ogawa's philosophy through their literature and documentary television programmes.

Figure 12.3: Summary of the transition



Note: The acknowledgement of photography: Nishioka Tsunekazu (NHK, http://www.nhk.or.jp/archives/anohito /past/2006/089.html), Ogawa Mitsuo (Itoi, http://www.1101.com/life/). Also, Ogawa's disciples are anonymous.

12.3 The Theoretical Perspective: Ecological knowledge

The temple carpenters are not environmentalists, and they have never heard of the terms "sustainable development" or "environmental education". Yet, they have a remarkable sense of sustainability, such as considering 300 years - 1000 years ahead. As Tanaka (1997) wrote, the most fundamental thought of Nishioka related to environmentalism is, "a tree lives twice," which means it lives its own life on a mountain and after that it lives another life as

a material. According to Nishioka, if you use wood ‘well’, it can last the same length of time that the tree lived on the mountain. For example, if you use 100 year-old trees well, the building will last 100 years, and if you use 1000 year-old trees well, it will last 1000 years. That is why Horyuji Temple still exists in the current era. One of the oral literature “Kuden” which Nishioka passed on and is currently a written form, narrates the knowledge of how to use wood ‘well’ (Nishioka, 1988). For example:

- “For material to build a temple, do not buy trees, but buy a wood-mountain” (Nishioka, 1988, p.228). This means do not buy processed lumber from a timber dealer, but go to a wood-mountain by yourself and determine the characteristics of wood by yourself because it will be difficult to find out the character after it is processed.
- “Use a tree in the direction it has grown” (Nishioka, 2001, p.152). For example, if it grew on the south side of a wood-mountain, use it in the south part of a building, if it grew on the north side, use it in the north part of the building—by using the character of trees a building will become more durable. Tanaka (1997, p.14) notes that it is as if they are building another wood-mountain.
- “Do not joint trees by the size, joint them by the character” (Nishioka, 2001, p.154). It is essential to joint trees by looking at the size; however, it is more important to joint by the character. Trees grow bending toward the sun; the combination of wood bending to the right and wood bending to the left can prevent distortion. If you use only the wood bending right, the whole building will bend to the right later on.

Another tradition in using wood is to avoid the use of nails and chemical glue because, according to Nishioka, if a nail is used, it will decay and it will not last as long as expected. In fact, Nishioka argued with an academic scholar of ancient architecture about using iron

nails for repairing Horyuji Temple in a series of articles in the Japanese newspapers. He insisted on using no nails because, "if we pierce it with iron, we will have to replace all the cypress when the iron becomes brittle from rust after three or four hundred years" (cited in Tanaka, 1997, pp.15-16). Nishioka had general doubts about modern science and academics:

> "My grandfather [who was also the in-house master carpenter served to Horyuji Temple] always said a mister-man [or craftsman] [29] was more high status than academics a long time ago. Since the Meiji era, western knowledge was imported and then academics became high status. The mister-man who did the actual job became looked down on, which is strange. That's why the mister-man has to study as well and work hard, said Grandfather….Even we [temple carpenters] cannot say stupid things in the meeting about repairing a temple. Since we have to study and lead the meeting, we researched really hard. We checked the scrap wood left on the ceiling of the temple one by one and said this is that or this is from that part. We researched this kind of details and then we conclude this style is something like this. Then it became a debate [in the meeting], with academics saying something like that Garan [one of the buildings in temple] should be this style in this era, so this part is this and that part should be that. They are talking upside-down. They are thinking about the style first. It's not like that. We have to think from research about the real scrap wood parts. Before their thought, the building already existed. Through the mister-man, the building came to being, and then academics are studying about that, so we are the first. Academics were not before us. Mister-man existed first." (Nishioka, 2001, pp.78-80)

[29] This is translated from Japanese word "shokunin". It can be interpreted as mister-man, craftsman, workman, and artisan. In the Edo period (before industrialisation in Japan), shokunin was respected as the person who has a special skill. Usually the skill can learn from apprentice.

In spite of his pride of mister-man's (craftsman's) professionalism, this traditional knowledge was not passed down to Nishioka's children, but to his only disciple, Ogawa. The succession is evidential as Ogawa explained the temples they construct:

> "Our buildings can be repaired. In the current technology, the concrete base will only last 200-300 years, but when the base gets bad, we just dis-joint the wood parts and renew the base and after that, re-joint the same wood parts again. We are aiming at conserving the wood parts much longer than 300 years." (Interview transcript 4.2)

As Ogawa mentioned in the interview, the continuity of the tradition despite changing time is recognised. This environmental ethics inherited over the centuries is specific for long-lasting building. However, as it is discussed later, their environmental implication is becoming more widely recognised in Japan in a more symbolic way.

12.4 The Practice in Ikaruga Kousha: Learning in apprenticeship

The most distinctive aspect of Ikaruga Kousha is that disciples live together in the same accommodation, since Ogawa believes that communal life is the best way to learn the knowledge and technique of the temple carpenters. He said:

> "We don't teach anything. In this situation, the most important thing is we need to soak in the atmosphere of learning. But if there is not such atmosphere, people need to teach. But we have the atmosphere so we don't need to teach. In order to create that atmosphere, we just live together, eat together and work together. We spend time together for many years for training for the same target. Then it becomes like that." (Interview transcript 4.1)

Most disciples start this apprentice when they graduate high school (about 18 years old). Because of literature and media, there a number of people want to work in Ikaruga Kousha; however, only a few people are offered the work—for example in 2005 only 5 people of 300 were selected and offered the job. In the work place, there are four levels, depending on disciples' experience and technique and the salaries are differentiated by these four levels. New employees always start from the beginning level.

The life in Ikaruga Kousha has a simple structure: the breakfast at 7am, tea time at 10am (for 15 minutes), lunch at 12am, tea time at 3pm (for 15 minutes), and dinner at 7pm. Other hours are on the work (Field note 6 Jan 2007). This simple life continues from Monday to Saturday. At busy time, they need to work on Sunday.

12.4.1 The junior level

Usually the newest disciple makes meals, prepares for tea time, and cleans the accommodation. Manaka (anonymous), who is 19 years old, was on the role of cooking and cleaning. His daily life is: He wakes up at 6 am prepare breakfast for 7 am, start to work under the supervision of senior people, prepare tea and snacks for the break for 10 am, prepares lunch for 12 am, prepare the tea time again for 3 pm, prepares dinner for 7 am, after that go shopping for food, and later takes care his tools (sharpen the knifes) like other people, wait for the bath until everybody finishes and have a bath at last, then sleep at 1 am or 2 am.

Manaka started to work in Ikaruga Kosha at the age of 15 when he graduated a junior high school. He had continued to work in Ikaruga Kosha for a half year and then he left because he wanted to play outside as a lot of young people do. When he asked Ogawa, Ogawa said

‘OK, go and play as much as you want. I will hire you again when you want to come back if you are not more than 20 years old at the time.’ So he went to play a lot for three years while working in a local construction company in his home town. Eventually he played “too much” and went to a juvenile detention centre. When he was there, Ogawa visited him. He thought about the future in the centre and decided to go back to Ikaruga Kousha. He told the reason:

> “The reason to come back to be a shrine carpenter is, I think, shrine carpenter is a life time job. It is a very deep job. In the other job like working in a construction company or a car manufacture company (among what he has done so far), if you learn a certain procedure, then your just repeat the same things. But a shrine carpenter can continue to lean until one dies.” (Interview transcript 4.5)

As seen in the interview, he recognizes the job of shrine carpenter is a life long learning process. Now he has been working in Ikaruga Kousha for one year (as of 2007).

12.4.2 The senior level

Kitano (anonymous) has been working in Ikaruga Kousha for 11 years (as of 2007). He started to work right after graduating a technical high school at the age of 18. While studying architecture in a high school, he encountered Nishioka’s book and wrote to Nishioka at that time. Then Nishioka introduced Ogawa and his company Ikaruga Kousha. He describes the communication and learning in Ikaruga Kousha as follows:

> “We don’t chat during lunch, dinner and break time at all. Also we don’t talk during the job so much. Well, a daily conversation… we are living together and seeing the same things together so we don’t have any different topic to talk about….Quite often

visitors are surprised that we don't talk so much. But I am curious what everybody is talking everyday and everyday…I want to ask that in return! [laughs] We have a lot of opportunity to think, so we think as much as possible and in the end we ask something that we cannot solve by ourselves. Otherwise if we ask something that we aren't ready to, then we cannot organise a question well and it will get long, and from the listeners' side, they don't understand. We have plenty of time to think. But it is not good if someone stops his hand by thinking too much. In that kind of situation, senior people think the guy have been thinking quite a lot but still cannot find an answer, and they give us a little hint, but they never tell everything.

To give advice is difficult because each person receives differently. Even though we don't talk so much, we live together and understand the character of each person, so the way to give advice changes for each person. That is the one good advantage to living together." (Interview transcript 4.3)

As Kitano said, carpenters in Ikaruga Kousha work silently. They gave advice to each other when necessary; however, they do not praise and scold each other. Since they spend so much time together in communal life, it seems they can sense someone's feeling without many words. Yet, when it comes down to daily life, senior people give some advice. Another senior disciple, Hashigami (anonymous), who was also inspired by Nishioka's book and started to work in Ikaruga Kousha, said:

"I often pick about small things and tell to young carpenters. For example, I tell them there is a shortage of toilet paper. To teach such daily life means to teach the attitude that we are going to do a courteous job like that. That is why I say small things." (Interview transcript 4.4)

From the observation at the workplace, the carpenters were working from early in the morning until late at night. They treated the wood very carefully. They had a notion of "training" and "learning"; rather than earning money in a company, and a desire of satisfaction in their own work; rather than thinking about the efficiency.

12.4.3 An independent carpenter

According to Ogawa, a number of people left before finishing 10 years training though about 20 people completed the training. Tsukijima (anonymous), who was also one of Ogawa's disciples though he has trained only five years with Ogawa, established his own company in Osaka. However, even though he did not complete it, Ogawa's philosophy remains with him. Particularly on the environmental perspective, he said:

> "I don't do anything environmentally-friendly. Construction is all about destroying the environment. But only, we know the wisdom and knowledge how to make use of it. [….] It is absolutely wrong if we forget how to make use of nature." (Interview transcript 4.6)

> "I don't feel refreshed or healed in nature (or natural landscape). For me, tree is for cutting and using. The current people think if there is a big tree, they need to conserve it, but for me, it is dying so that it's better to cut it as soon as possible and use it like partitions in the building. Old people and countryside people are thinking the same as me. Though only city people say 'save it', but for countryside people, they will say 'are you stupid? What do you do if you don't make money from this resource?'. That is the forest. Their own mountain is not for conserving, but for making a profit. If somebody wants a tree, they will wait until it gets a high price. The countryside people are living like that. If you deny it, they cannot survive."

(Interview transcript 4.6)

For him, nature is resource and he is a specialist of making full use of the resource. Because of the knowledge and skill he gained from Ikaruga Kousha, he runs business successfully and currently he has two disciples in his workshop. However, at the same time he struggles with the brand name of Ikaruga Kousha.

> "The current era, people don't pay money to workman's spirit (or pride). If it is such era that people pay for the spirit, I will be like a picky man and go for the attitude like 'I am Ogawa's disciple and Nishioka's grand-disciple!'. But I need to manage my company. If they pay a lot, I can do anything, but if they don't, I cannot do much more than the money. That's normal, isn't it? But it is trouble for me that people [clients] expect me to show workman's spirit. Well, why I have to buy a good material for clients and I need to make a debt for myself. Yakushiji temple paid a huge amount of money to Nishioka, that is why he built such great buildings. People are misunderstanding that misterman's spirit is free of charge. In fact our spirit is not 'priceless'!!" (Interview transcript 4.6)

> "Clients often ask me to build 'the best' building and then when I brought an estimate to them, they said they don't have such money. We (shrine carpenters) know the price of 'the best' building but they don't know. But the important thing for management is we need to make them feel a better deal within the estimated cost. Then they will say 'I spend 10 million yen and carpenters built such great building. They did this and that [more than the money]…'. A master carpenter needs to think about how to please the clients. It is easy to become a shrine carpenter but it is difficult to be a master carpenter. Well, sometimes I make client angry, but I need to

deal with it and solve it.—that is the construction company and business." (Interview transcript 4.6)

When it needs to run a company, it is impossible to avoid considering about the efficiency of the company. He talked about the balance between the knowledge he gained in Ikaruga Kousha and the management in his own company:

"Oral literature…well it is better if we can do it like that. It is important to have it as an ideal form but I need to balance with the management. In the first place, we need to think about such ideal thing and in the next step we need to think about management. First: belief and second: management. If we don't have any belief, we cannot do management as well, that I realized these days." (Interview transcript 4.6)

12.4.4 Clients (a temple priest and local people)

Learning does not occur only in disciples in Ikaruga Kousha. According to Kozouji Temple, in Kurashiki, Okayama prefecture, clients (a temple preist and local people belong to the temple) who order to Ikaruga Kousha for building a new temple, also learn in a different way. There are two types of temple in Japan: one is a traditional big temple which is famous for sight-seeing, and the other one is a local temple which has a prominent role for local people. Of those, Kozouji Temple is a local and very small temple. One of the buildings in the temple was newly rebuilt in 2005 by Ikaruga Kousha.

According to the temple priest, Amano, the reason to ask for Ikaruga Kousha is that he needs, first of all, authentic and durable building to pray and also aesthetic building to attract people. Temples are used to be a symbolic building in a local community not only as religious reason but also as education, care, hospital, shelter, and market. For example, the

word “terakoya” which is now used in “World Terakoya Movement”, one of the UNESCO’s initiatives for Education for all, means literally “temple school” which started in 17th century in Japan. Any young people between 6 years to 14 years old could attend and study about literacy and numeric skills. Terakoya movement led Japan to achieve the highest literacy rate in the world at the time. For other examples, temples have been used as evacuation centres when a disaster happens such as earthquake or typhoon. Also, some of the temples still remain traditional open market regularly. The priest, Amano has been attempting to recreate a lively temple which used to be.

Amano mentioned that to build a building by Ikaruga Kousha itself was education for local people. Previously local supporters of the temple agreed to repair the old one and donated money to the temple; however, Amano learned out that “If we repair old building, it would last 50-100 years. But if we ask to Ikaruga Kousha and pay 20% more, it will maintain 300-1000 years” (Interview transcript 4.7). He explained economics transcend time and space and convinced the supporters to think about their descendents. There seemed to be objection and opposition movement until completing the construction. However, after completion, local people who were against it bring friends to show off the building.

While taking part in the decision-making, thinking about descendents, and learning about the philosophy of Ikaruga Kousha, local people changed their attitude. Amano mentioned they are treating the building carefully as their own building, and he remarked “people are changing by the environment and the environment is changing by people.” (Interview transcript 4.7)

12.6 In a Wider Context

There is one big challenge that most people mentioned in the interview—a shortage of trees in Japan. Hinoki cypress is the most durable wood to build temple and shrine; however, it is now very difficult to find enough old and large Hinoki cypress because of mismanagement of the forest in Japan mentioned in the background (12.1). Thus in recent years Ikaruga Kousha has been using the wood called Hiba[30] which has similar character to Hinoki cypress. According to Ogawa, they were buying a half of the wood from Japan and the other from Canada. The temple priest Amano, also regretfully revealed that Kouzouji Temple was built by Canadian Hiba. This situation seemed extremely embarrassing for a lot of people who try to conserve and build traditional Japanese architecture. Ogawa (Interview transcript 4.2) mentioned "This is not going to be a Japanese heritage anymore".

Because of this issue, Ogawa is sometimes invited to talk in a public lecture and also in interview with magazine and TV programme. One of the successful cases which he often refers to is Ise Shirine in Mie prefecture. The architectural style of the Ise shrine may not be used in any other shrine. Because of their belief, the old shrine needs to be dismantled and a new one needs to be built on the same site with the exact specifications every 20 years. The present buildings, dating from 1993, are the 61st iteration to date, and the next ones are scheduled for rebuilding in 2013 (Ise Jingu, http://www.isejingu.or.jp/). Because of this ceremony, the shrine has its own forest and has grown its own trees by spending time and money. Ogawa carefully noting that it is not necessarily to ceremonise it every 20 years; however other temples and shrines can learn from them to own its forest and grow its own trees with their own responsibility. As Nishioka (2001) also mentioned, the government cannot support to grow hundreds years old trees since the people keep changing and the government keep changing. He claimed that only temples and shrines have a possibility to

[30] In the scientific name, it is called False arborvitae or Thujopsis dolabrata.

grow hundred years old tree.

In the education field, Ogawa is also influential. Ogawa's recent book about apprenticeship has been widely read by educationalists because there are many insights into learning and education. He has done several lectures about the book and even he was invited to talk at the formal school principals' training course. Such momentum has been growing among the conservative education academics and policy-makers in order to gain insights from apprenticeship into the current education system in Japan.

12.6 Summary of Case Study Four

This chapter described apprenticeship in shrine carpenter workshop Ikaruga Kousha in Japan. They build wooden architecture particularly a temple or a shrine which can be preserved for hundreds of years. Their traditional environmental knowledge about architecture and trees is obtained through apprenticeship which lasts 10 years. The disciples in Ikaruga Kousha were trained and distinguished in four levels. Juniors are learning from seniors and stealing their skills. Their view of sustainability and the pedagogy of apprenticeship are supported by a number of people in the environment and education field in Japan.

Chapter 13

The Theoretical Perspectives in the Four Case Studies

In an evidence-based approach, the synthesis of evidence is the most significant part. The synthesis approach of this research takes replication in order to identify effective environmental education in terms of theory into practice (See Chapter 5). This part of the thesis (Part IV Analysis and Discussion: Chapter 13 to Chapter 16) conducts exercises of analysis of each case and comparative analysis between cases, then discusses to the replication of effective environmental education. More specifically, Chapter 13 (this chapter) focuses on analysis of the theoretical perspective in each case. Chapter 14 focuses on analysing practices of the case studies and comparing them. Following the results of the analysis in the two chapters, Chapter 15 discusses the four cases in light of the analytical framework of effectiveness which was discussed in Chapter 2. The last chapter, Chapter 16, presents a synthesis of the analysis, provides recommendations toward practice and policy, and also reflects theoretical contribution of the thesis.

In this chapter, firstly, it details the method of analysis focusing on the usage of database (13.1). Then, it specifically addresses the theoretical perspectives regarding each case and is divided into four sections; one for each case (13.2 to 13.5). Each of these sections has a brief introduction to the theme under consideration, and this is followed by more detailed analysis on that topic, brought by the database.

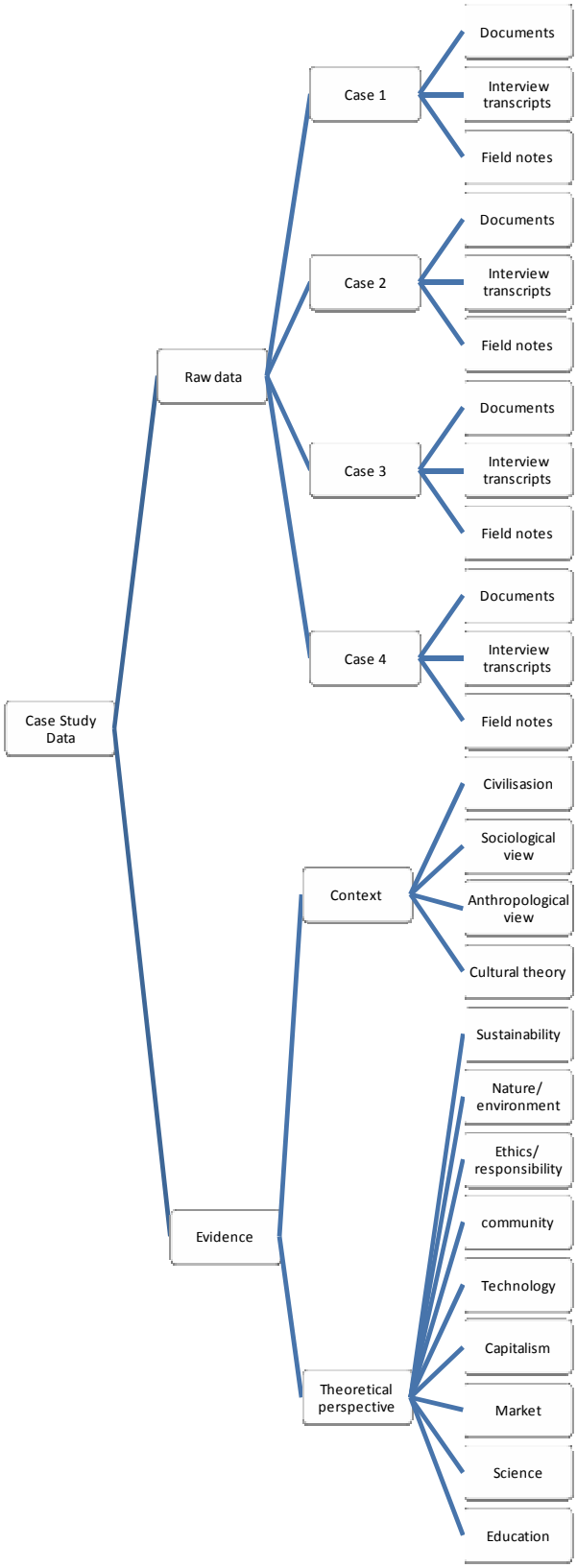
13.1 Introduction to the Process of Analysis about Theoretical Perspectives

The analysis in this chapter was conducted using theory-led thematic analysis, as presented in Chapter 8. More specifically, the theoretical perspectives for each case were listed by

theme, covering; sustainability, nature/the environment, ethics/responsibility, community, technology, science, capitalism, and education (See Table 8.2). Moreover, the context of each is discussed according to the themes explored in the literature review, such as: geographical aspects (East and West), cultural theory (egalitarian, hierarchical, etc.) and so on.

For the analysis in this research, the database was constructed for managing the data and facilitating thematic analysis (See Chapter 8). The data were categorised into folders in a hierarchical way (See Figure 13.1). In the first process, all the electronic data were imported into the data and categorised under the main heading 'raw data' (Figure 13.1). The dataset is searchable under the case study (e.g. Case 1, Case 2 and so on) and the data source (e.g. documents, interview transcript, and field notes). This categorisation was used to manage the data and to maintain the 'chain of the evidence' (Yin 2003) as discussed in Chapter 8.

Figure13.1: Categorisation in the database for theory-led analysis



The second phase is the process of transforming data into evidence. Particularly in relation to the analysis of this chapter, the data were coded and categorised in terms of themes on the theoretical perspective. In the coding process, a chunk of data were extracted from the 'raw data' folder in each case study with maintaining the citations (e.g. which case study, data source, date and so on), coded, and reorganised under the 'evidence' folder (See Figure 13.1). Those coded texts were sub-categorised into each them under the perspective of the context (e.g. civilisation, cultural theory and so on) and the theoretical perspective (nature, capitalism and so on).

In the process of theory-led thematic analysis, the themes are derived from the literature review; however, they are not strictly fixed. For example, the view of sustainability is added as a theme since most of the organisations have the data in relation to their view of sustainability, which were found from the observation of the 'raw data' folder.

Generally, there was a great variation of representations in themes in the database. However, certain tendency of distribution can be observed; for example, there are a number of documents (evidence) for the view of sustainability in relation to Case study one (the WWF-UK Formal Education Team) and Case study two (the ESD-J); on the other hand, Case study three (the Schumacher College) and Case study four (Ikaruga Kousha) has more evidence for their view of nature or environment rather than sustainability. In each case study, some theme were strongly represented compared to others; however, the analysis in this research does not aim at quantifying those documents (coded texts). The following sections present the evidence from database and analyse them in each case study.

13. 2 Case Study One: the WWF-UK Formal Education Team

The main achievements of the Formal Education Team in WWF-UK have been the development of the concept and framework of 'Learning for Sustainability' and support for schools to orient them towards sustainability. To achieve the latter, the team developed the capacity building toolkit of Learning for Sustainability, called "Pathways" and piloted it in a number of schools. In addition, the WWF-UK's annual teacher conference was used as forum for popularising the idea and promoting the tools. The team has also been working closely with the UK government on the topic of education for sustainable development.

In general, their theoretical perspectives, as they mentioned during the interviews, have been influenced by Sterling in the environmental education field and other academics who have focused on the concepts of action learning or action research. From the database, their theoretical perspectives are analysed by theme as follows (Table 13.1).

Table 13.1: Theoretical perspectives identified in case study one

Themes	Some examples of evidence from the database
Sustainability	Emphasis of social aspect: "…sustainability is a social process, and we recognised that our professional development needed to be re-oriented toward building the capacity of everyone in the school." (Birney et al., 2006, p.70)
Environment/Nature	Stewardship: "People are part of the natural world. The choices we make shape and are shaped by people, events and environments close to home and in places far away." (WWF-UK, 2007)
Ethics/Responsibility	Emphasis of Care: "Sustainability can most easily be expressed as a commitment to 'a culture of care': Care for oneself, care for others, and care for the environment." (WWF-UK, 2006)
Community	Global, mobile and virtual view of community: online conference and communication using the Internet.
Technology	Rely on high technology: The team sees the Internet as a vital tool for communication, training and the dissemination of information.
Science	Science-based organisation: "The Living Planet Report 2006 [which produced by WWF] confirms that we are using the planets' resources faster than they can be renewed." (WWF-UK, 2006).
Capitalism	Neither anti-capitalist nor pro-capitalist view: serious environmental concern plus "a bit more fun" (Interview transcript 1.5), in order to gain the attention of mainstream people.
Education	Transformative view: 'Learning for sustainability' The distinction of learning and education: "**Learning** is more of a psychological phenomenon, a process in which we develop ways to see and interact with the world around us. **Education** is more of a sociological phenomenon, more focused on what educators do to facilitate learning in others." (WWF-UK, 2004, p. 4, bold in original)

First of all, the WWF-UK Formal Education Team regards both education and sustainability as social processes. This viewpoint is held in common with those who support socially-critical environmental education, such Fien (1993) and Huckle (1993). In addition, as the team mentioned, they have been influenced by the idea of transformative learning in relation to sustainability, particularly systems thinking, as put forward by Sterling (2001). This shows that the team has a profound interest in social change in the context of sustainability. For this reason the WWF-UK Formal Education Team places a high priority

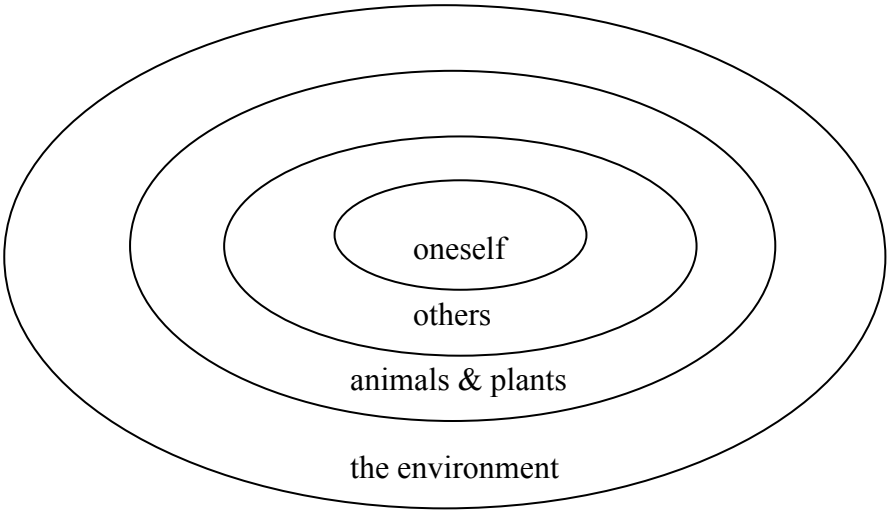
on working with the UK government. This social focus became clearer when members of the education team talked about their view on education and learning, where they made a clear distinction between the two concepts, that is to say education was seen as being for social change and learning for personal change. On the basis of this viewpoint, their aim and their work might be explained as follows: they try to prove that transformative learning is working at the micro level and by so doing, encourage the appropriate stakeholders to become involved at the macro level.

Secondly in terms of the environmental ideology, the education team's view is that people are part of the natural world, which suggests they take a moderate position between the two extremes technocentrism and ecocentrism, according to O'Riordan's (1989) categorisation, and could seen as being be located in "accommodation" in technocentrism. In fact, the team has utilised current mainstream technologies, such as using the Internet by creating a website and participating in online conferencing, in order to disseminate their ideas to a mainstream audience and for recruiting new converts. Also, the team can be based on materialistic view: in order to attract people's attention, they approved to give away a special gift in the teacher's conference (See Chapter 9). In an essence, they have adopted a reformist view of capitalism, as opposed to a radical one, according to Pepper's (1996) framework of environmentalism.

Also, the WWF-UK Formal Education Team has taken the position that caring is a central conception of sustainability. This stems from caring for oneself initially to caring for others, and then caring for the environment. And this view could be considered to be consonant with certain feminist views of the environment. For example, Merchant (1992) categorised environmentalism as being from egocentrism to homocentrism, and then to ecocentrism. Also by extension, Noddings (1984) suggested that curricula need to be constructed around

and oriented towards caring. Her view was that there should be shift from caring for oneself to caring for the earth as a whole (Figure 13.1). This altruistic type of approach resonates with Sterling's (2003) concept of systems thinking.

Figure 13.2: The process of expansion from caring for oneself to caring for the environment



Furthermore, this might be argued as being consistent with cultural theory (Schwarz & Thompson, 1990) with regard to egalitarian rationality. The notion of egalitarian rationality in the cultural theory, which attempts to expand concepts of freedom from individuals to wider entities, the latter referring to environment. In other words, WWF-UK Formal Education Team's view suggests that there need to be the changes to individualistic behaviours, which have been implicated in causing environmental problems, to caring about other people, plants and animals, and the environment. However, the WWF-UK Formal Education Team has not been arguing for any prescribed regulations and rules with regards to protecting the environment. This is because they are of the opinion that nature is an organic, sensitive and delicate being and consequently inflexible regulations and rules are not always helpful. It is mainly for this reason that the Formal Education Team in the UK

has been supporting the approach of capacity building.

13. 3 Case Study Two: the ESD-J

This section analyses case study two: the Japan Council on the UN Decade of Education for Sustainable Development (the ESD-J). The role of the ESD-J is to promote the UN Decade of Education for Sustainable Development, at all educational levels. They have focused on activities with local NGOs, local governments and more importantly central government. The ESD-J has been also influenced by the socially-critical view of environmental education as well as the whole movement of education for sustainable development in Japan, as reported in section 10.3 in Chapter 10. Moreover, it has also supported bottom-up methods of working for local communities in Japan and projects in other Asian countries. From the data base, the ESD-J's theoretical perspectives are presented as follows (Table 13.2).

Table 13.2: Theoretical perspectives identified in case study two

Themes	Some examples of evidence from the database
Sustainability	Emphasis of social aspect: "Sustainable development guarantees a democratic social system in which everyone is able to participate and an economic system that takes into account any impact on society and the environment, and respects the uniqueness of individual cultures." (ESD-J, http://www.esd-j.org/e/whatsesd/whatsesd.php)
Environment/Nature	Values economics and society as well as the environment: there is less emphasis on nature conservation.
Ethics/Responsibility	Social justice and responsibility for causing unsustainable societies: proposed UN Decade of Education for Sustainable development and promoting it.
Community	Focuses on the promotion in local communities: "each and every one of us must cooperate and combine forces in an effort to solve the plethora of problems we face." (ESD-J, http://www.esd-j.org/e/whatsesd/ whatsesd.php)
Technology	Pro-technologist view: utilising the Internet communication.
Science	(no evidence)
Capitalism	Reformist view: It tries to involve business and to change toward sustainability.
Education	Transformative view: "Education is the primary agent of transformation towards sustainable development, increasing people's capacities to transform their visions for society into reality… Education for sustainable development is a process of learning how to make decisions that consider the long-term future of the equity, economy and ecology of all communities. Education builds the capacity for such futures-oriented thinking." From DESD Draft International Implementation Scheme (UNESCO, 2004, p.14)

Because the ESD-J was formed to promote the UN Decade of Education for Sustainable Development, their theoretical perspectives have generally adopted those of UNESCO which is the lead agency in the initiative. That is to say, the ESD-J's education perspective has taken UNESCO's view of the need for transformative learning and capacity building as seen in Table 13.2. These approaches to environmental education are quite similar to those

of the WWF-UK Formal Education Team in terms of aiming at social change. Basically, the ESD-J also has endeavoured to influence changes to organisational systems by working with the government. Moreover, like the WWF-UK Formal Education Team, they have adopted socially-critical perspectives of environmental education.

Their concept of sustainable development has been drawn from the framework of the three pillars of: environmental, economic and social development, as discussed in Chapter 10. In particular they believe strongly that education for sustainable development is different to environmental education, as the latter places less emphasis on the social and economic aspects. Most notably, Japanese environmental education has developed as a result of social problems, such as kougai (industrial pollution) and domestic pollution (See Chapter 10). That is to say, in the Japanese context, environmental education has already been considering social aspects as being of great significance, when compared to other areas of the world. For example, they are more interested in education related to social issues such as: gender, well-being and peace education.

Like the WWF-UK Formal Education Team, they are not anti-capitalist and take a reformist view of capitalism according to Pepper's (1996) categorisation, that is they accept the use of the mainstream technologies, science and resources. In this context, they are keen to utilise the Internet and other technology for disseminating information and networking with organisations and individuals.

One of the interesting observations with regards to the ESD-J is the gap between their contextual perspective and that of others in Japan and different Asian countries. That is to say, they base their work on the type of egalitarian rationalities that are found in Western or international environmental NGOs, which emphasise support and capacity building in the

target group. However, by contrast some of the target groups had been expecting more leadership from the ESD-J and others had been irritated and confused by this approach. This misunderstanding between the different parties may have arisen due to the different cultural backgrounds, in that many of the Asian non-Western participants might be strongly influenced by Confucian philosophy. This philosophy emphasises morality, sincerity and justice as exemplified in "Li". In particular it teaches to respect for senior people, authority and ancestors. As a consequence of these characteristics of Eastern cultures, when one of the local NGOs, under the ESD-J network, delivered the practice in a more top-down way, consistent with a Confucian approach, they achieved remarkable results. In this organisation, the collaboration with the mayor who is interested in education for sustainable development brought the strong promotion for the education in the local area, which resulted in the large number of participation from local citizens (See an example in Section 10.1.4, Chapter 10).

13. 4 Case Study Three: the Schumacher College (UK)

This section analyses the third case study, that of the Schumacher College in the UK. The college provides three types of courses, namely: short courses, a certificate course and a masters course. The courses are organised around themes relating to ecology and sustainability. The college attracts a number of teachers and participants who entertain the same sort of ideas. As explained in Chapter 11, not just the content of the course, the whole life of the college, i.e. its physical environment, its historical buildings, communal living, task-sharing, and an open atmosphere for the staff and participants, are all brought into creating the learning process.

The college philosophy is based on the idea of deep ecology and Gaia theory as well as the ideas of E.F. Schumacher (1973). Moreover, the ethos of the college is underpinned by a

sense of spirituality, which mostly influenced by Satish Kumar, an Indian monk inspired by Gandhian thought, and also one of the founders of the college. From the database, the example of their theoretical perspectives is presented in the following table (Table 13.3).

Table 13.3: Theoretical perspectives identified in case study three

Themes	Examples of evidence for each theme
Sustainability	Emphasis on ecology: Harding's idea of deep ecology and Gaia theory, Satish's philosophy of spiritual connection to the earth, and also the other teacher's theories. Sustainable lifestyle in the college: such as the practice of less ecological foot print; vegetarian food; composting; recycling and so on.
Environment/Nature	Intrinsic view of nature: believing in deep ecology and Gaia theory, and considering nature as complex, organic, and holistic entity.
Ethics/Responsibility	Spiritual (and religious) connection to Gaia: Satish's (1973) philosophy of spiritual connection to the earth, and the practice of meditation, reading poem, chanting and singing in the College. Reducing ecological footprint: strictly vegetarian food, trying to reduce waste, growing organic vegetables.
Community	Values on small community: believing E.F. Schumacher's idea of "Small is beautiful".
Technology	Not entirely anti-technology view: technology is accepted if it is seen to alleviate environmental problems.
Science	Holistic science: "Holistic Science advocates a participatory science of qualities, values and interactions which underpins an ecological world view. Western scientific method is dominated by specialisation in disciplines and by 'reductionism' — the idea that natural phenomena can be explained and understood in terms of their smallest parts." (Schumacher College, http://www.schumachercollege.org.uk/courses/ msc-holistic-science)
Capitalism	Middle way position of capitalism: believing E.F. Schumacher's (1973) idea of "Small is beautiful".
Education	Transformative learning: "Schumacher College has helped thousands of organisations and individuals in understanding and finding solutions for the most pressing ecological and social concerns of modern life." (Schumacher College, http://www.schumachercollege.org.uk/)

The environmental perspective of the Schumacher College is based on the idea of deep ecology and Gaia theory, which suggest that nature has intrinsic values and Gaia (the Earth) is an organic self-regulating entity. The College views nature as delicate balance and attempts to explore ideas of sustainable living. In this sense, the rationality can be seen in the egalitarian in cultural theory (Schwarz & Thompson, 1990). Also in O'Riordan's (1989) framework, these thoughts are located at the extreme of ecocentrism, where it is believed that nature has intrinsic values and human beings need to be responsible for the environmental problems in which they are implicated as being the cause. Also, the college ethos refutes the Western reductionist view of science and seeks alternative forms such as holistic science which follows an ecological world view.

In terms of capitalism, the college derives its ideas from the 'small is beautiful' concept promoted by Schumacher (1973), which is not overtly hostile to capitalism. However, Schumacher's idea took into account the need to appreciate both human requirements and the limitations of natural resources, and thus to apply available technologies with these contrasting elements in mind. Later on he focussed his interests on the development of village-based economies, under his notion of "Buddhist Economics". Within this approach he put forward the idea of "enoughness" which proposed the need for balancing human needs and natural capital. On the basis of Schumacher's ideas, the college developed its ideological perspective by focussing on alternative and ecological value systems. This echoes the radical view of capitalism (revolutionary socialist) put forward in Pepper's (1996) categorisation of environmental approaches, one which takes an anti-capitalist stance and rejects the big state and values communal societies. In practice, as a consequence of this approach, the college attempts to maintain its size at a constant relatively small level, by becoming as self-sufficient as possible, particularly with regards to financial matters and

resource provision, in order to restrict the level of growth of its ecological footprint.

The Schumacher College is unusual, as in a sense the gates are wide open only to the people who can afford to pay the course fee (though there are a limited opportunities for funded places). It appears to be open to many people whether the UK or internationally; whether young or old; whether male or female; whether disabled or not; however the limitation of the college is that it is closed to poor people who cannot afford to come to the UK and pay the course fee. During the fieldwork, one Brazilian participant in the course, who was excited about coming to the UK, was talking about how a lot of people are poor in her country and admitted that it was extremely prestigious to come to the UK and attend the course in the college (Field note 5 July 2007). This observation indicates that the participants in the college were self-selecting rich people who can afford to join and talk about poverty.

Another significant limitation of the college provision is that all the activities of the college are delivered in the English language, even though the institution calls itself an international college, thus excluding participants who cannot speak English. Also, obviously Western culture and values are underlined on the English language communication delivered in the College, which in some way they are getting away with. For example, the practice of their learning is aimed at transformative learning which encourages individualistic character derived from Western culture. This might be able to explain a part of the reason why there are few, or no, participants from Middle East, East Asia and other areas whose values contradict such values in Western countries.

13. 5 Case Study Four: Ikaruga Kousha (Japan)

Ikaruga Kousha is a company that builds wooden architecture, particularly for temples or shrines and which are designed to be sustainable for hundreds of years. Their traditional environmental knowledge about architecture and trees is obtained through apprenticeships which last 10 years. The disciples in Ikaruga Kousha have been trained through four distinct levels. Juniors learn their skills through a process of watching the seniors at work. Their views of sustainability and the pedagogy of their apprenticeships are supported by a number of people in the environmental and educational fields in Japan.

In general, their philosophy and theoretical bases have been inherited from the master Nishioka. From the database, examples of their theoretical perspectives are presented as follows (Table 13.4).

Table 13.4: Theoretical perspectives identified in case study four

Themes	Evidence for each theme
Sustainability	Clear vision of length of sustainability: their aim is to build wooden buildings which last for more than 300 hundreds of years.
Environment/Nature	Nature as resource view: nature is a precious resource that we need to use "well". Modifying view of nature: Not conserving wild nature as it is but modifying it in the way that it can last longer; "Tree lives twice" (Nishioka, 1998); Kuden (oral traditional literature) (Nishioka, 2001).
Ethics/Responsibility	Craft-man's professionalism: they have the responsibility for handling precious resources (wood).
Community	Hierarchical and rule-based community: communal life is an important part of apprenticeship learning; disciples are positioned by their professional skill, knowledge and experience.
Technology	Anti-technological view: relies on hand carving rather than machine-carving; jointing rather than gluing.
Science	Anti-western scientific view: believed in the notion of an inherited knowledge passed down over hundreds of years, rather than western scientific reductionist knowledge; " My grand father said…".
Capitalism	Middle way of capitalism: Master Ogawa and his disciples in Ikaruga Kousha emphasise learning rather than profit making. However, one independent carpenter from Ikaruga Kousha took the view that he needed to make a profit, so as to provide effectively for his family whilst still maintaining a balance between his ideals and realistic management of his business.
Education	Skill-oriented and transmissive view: emphasis on personal development of skill and knowledge for becoming shrine carpenter; their learning is not for social change, but for succeeding the shrine carpenter's knowledge and skills

The view of sustainability in their work is clear: Ikaruga Kousha aims to preserve their buildings for hundreds of years, and thus it encompasses the notion of sustainability over long periods of time. In the context of O'Riordan's frame of environmentalism, these carpenters appear to be located in the ecocentrism category with Gaianism (O'Riordan, 1989), because of their ecological approach to the use of wood and their interpretation of the meaning of sustainability as demonstrated by their honouring of wooden buildings. Such

perspectives have "faith in the rights of nature and of the essential need for co-evolution of human and natural ethics" (O'Riordan, 1989, p.85). It is true that the carpenters have co-evolved with the trees in the forests and developed the traditional knowledge and techniques for using trees effectively, so as to conserve the buildings under their care to an optimal extent. However, the bottom line is that all the people involved in temple building, i.e. carpenters, priests, religious supporters of temples, and others have cut down trees for the sake of humans. In light of this, their view of nature cannot be considered to be Gaian, as the carpenters regard this aspect of nature, i.e. trees, as a resource.

However, in their defence Ikaruga Kousha have exhibited a strong responsibility with regards to their use of natural resources. This is demonstrated by their modus operandi, in which they hunt down the rare large trees that they require and ensure that they use all the wood that they fell. This is consistent with their support for the Japanese traditional word of "mottainai" (too precious to be waste), a word that is not directly translatable into English, but one which is expounded by Buddhism, Shintoism and Confucianism[31].

Japanese religious or philosophical foundation has been consisted of mixture of different thoughts not only Shinto which is Japanese native religion, but also Buddhism and Confucius culture which originated in India and China and widely influence to East Asia. Shinto is a native religion in Japan embraced animism character, nature-worshiping. In fact, Shinto values love and admiration of nature. On the contrary, Buddhism is more focused on people. Mostly it is believed that in Buddhism in Japan when people die, s/he will become Buddha and those spirits of ancestors protect the current people. Also, in Confucian philosophy, to respect senior people and ancestors is significant part of belief. Given that

[31] Ikaruga Kousha is not a religious group; however, it might be culturally influenced by basic Buddhist belief and Shinto, as well as other Japanese people. In fact, according to one of the disciples, there was a Christian in the group before (Interview transcript 4.3).

these religions and philosophies values ancestors, it is interesting to note that our ancestors used to be agricultural people who modified nature for a very long time in Japan. Japanese ancestors have managed trees as a resource in Japan for many centuries. Nishioka (2001, pp.25-26) noted that:

> "A long time ago (in Japan), when a forefather built a new house, we would plant a new tree. For example this house will last 200 years, so if we plant a new tree, 200 years later we can use this when we build a new house. There was the understanding of the meaning of 200 years or 300 years (in Japan), now people don't have that kind of sense anymore. They are thinking about an immediate profit, aren't they? And then they say 'Save forests, conserve nature'. If you use trees properly and plant them properly, then they are a manageable resource. It is not like iron or oil which you dig up and then they're gone. Until recently a tree was made to last until the new one had grown. Thus, by using the original character of the tree there is no waste. This idea was normal, but we don't do this normal thing anymore." (Nishioka, 2001, pp.25-26, translated by the author)

As seen in the master carpenter Nishioka's quote, the ancient Japanese managed nature as a resource and modified it for current and future generations. This came from the position of accepting ancestoral beliefs and promoting resource management in Japan. In this sense, the categorisation of environmentalism by Merchant (1992), particularly homocentric view might be more appropriate to describe the Japanese context in this case study.

However, some similarity also can be seen with 'communalism' in ecocentrism depicted in O'Riordan's (1989) frame. That is, in Ikaruga Kousha living together in a communal arrangement as carpenters an essential part of their learning. They have almost totally

rejected the efficiency of mass production techniques and believe strongly in people's handicraft as the best way forward. They contend that maintenance of high quality products is best achieved by small groups of people learning together in a communal way.

In terms of their communal life, their approach is obviously grounded in a hierarchical system. According to cultural theory (Schwarz & Thompson, 1990), in hierarchical system, each participant takes their rightful place, that is, they accept the different roles assigned to them without question. Such a system is very much evidence in Ikaruga Kousha, as Master Ogawa (2001b) put it, each individual is given a position such that all these positions put together form the total structure of the community. This he expressed as being consistent with the notion of their physical work in that each component created by the carpenters is combined to create the structural whole e.g. a temple building. In essence, this community is very conservative and averse to change.

13.6 Summary of the Chapter

To summarise what has been discussed, firstly, significant similarities in the case-studies have emerged which can be loosely paired into two: the WWF-UK Formal Education Team and the ESD-J can be seen as being on the side of technocentrism, according to O'Riordan's (1989) categorisation of environmental perspectives, whereas the Schumacher College and Ikaruga Kousha have been found to be almost based on ecocentrism. By Pepper's (1996) categorisation of environmentalism, the WWF-UK Formal Education Team and the ESD-J are reformists and by contrast the Schumacher College and Ikaruga Kousha are radicals. Having said that, each case is not perfectly fit into the ideology mentioned above. There were some complex exceptions as discussed through this chapter.

What has become apparent is the Team in WWF-UK and the ESD-J are strongly in favour of promoting social and economic change to create sustainability, through actions at both micro and macro levels. The former is seen to be the catalyst for encouraging the latter. On the other hand, the Schumacher College and Ikaruga Kousha have more radical views about social and economic change, taking the position that sustainability can only be achieved through fundamental lifestyle changes, as in demonstrated through such things as the communal living that they practice. However, each of these communities practices a slightly different form of ecocentrism: Ikaruga Kousha might be categorised as 'communalism', whereas the Schumacher College's approach might be termed 'Gaianism' by O'Riordan's (1989) framework. One of the significant reasons is that the teachers in the Schumacher College espouse that nature has intrinsic value; in contrast to Ikaruga Kousha carpenters believes that nature is the end resource for people.

From the educational point view, a similar symmetry has emerged with regards to the four case studies. That is to say, the WWF-UK Formal Education Team and the ESD-J have been encouraging learning with the purpose of transforming society. By contrast, the Schumacher College and Ikaruga Kousha have been emphasising *personal* transformative learning, which equates with transmitting knowledge and skills. In other words, the WWF-UK Formal Education Team and the ESD-J hold instrumental values on education similar to socially-critical environmental education, whereas the Schumacher College and Ikaruga Kousha hold intrinsic values regarding education, seeing it as an end in itself. Nevertheless, although the ultimate aim of the WWF-UK Formal Education Team and the ESD-J is to reorient society toward sustainability at the macro level, they also value personal transformative learning at the micro level.

The next chapter (Chapter 14) analyses and compares the practices of the case studies

whose theoretical approaches have emerged as similar, i.e. a comparison will be made between the WWF-UK Formal Education Team and the ESD-J, followed by a further comparison between the Schumacher College and Ikaruga Kousha.

Chapter 14

Similar Perspectives, Different Practices: Analysis of Practice in the Four Case Studies

In the previous chapter, Case study one (the WWF-UK Formal Education Team) and Case study two (the ESD-J) emerged as having a similar theoretical perspective, i.e. technocentric view of the environment and the reformist view of capitalism. Also, Case study three (the Schumacher College) and Case study four (Ikaruga Kousha), likewise, were identified as having similar in theoretical views, i.e. eco-centric view of the environment and the radical view of capitalism. This chapter employs these theoretical groupings to explore the difference in practice amongst the different institutions.

In this chapter, firstly it presents the process of analysis particularly focusing on the database (14.1). Then each pairs of case studies is compared; for example, the WWF-UK Formal Education Team and the ESD-J are compared in Section 14.2, and the Schumacher College and Ikaruga Kousha in Section 14.3. In the final section (14.4), the analysis is summarised in light of four dimensions of practice which discussed in Chapter 1 (See Figure 1.3).

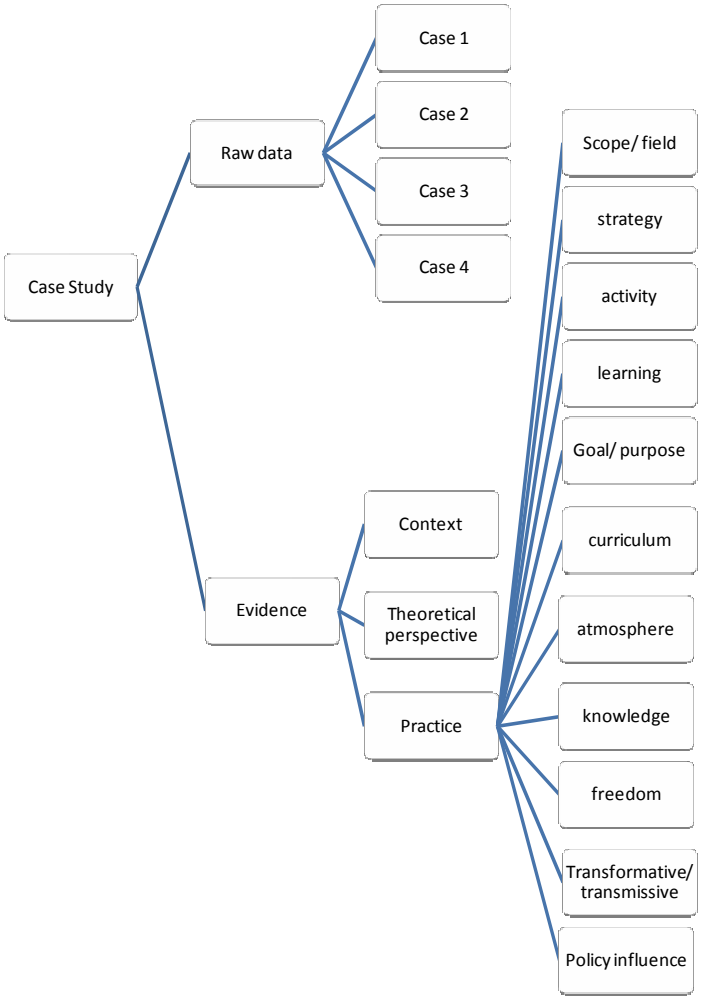
14.1 Introduction to the Process of Analysis about Practice

The analysis of practice was conducted using data-led thematic analysis, as discussed in Chapter 8. More specifically, the evidence of practice for each case were categorised by theme. Also the evidence of practice was analysed and discussed by the dimension of freedom and education practice in the literature review (See Figure 1.3 in Chapter 1).

The process of data-led analysis for practice was not as simple as the theory-led analysis in the last chapter. Firstly, from the 'raw data' folder, pieces of data were coded and gathered into the folder 'practice' with maintaining the citations (e.g. which case study, data source, date and so on). Secondly, after gathering of those evidence, similar codes and key words were loosely networked and put into the folder of the theme created. In this process, the networking and creating the theme folder was conducted in an experimental way. The flexible functions of the software helped this process, for example, it allowed to change the code name of the documents, move around the theme folder, change the name of the theme folder, add/delete theme folders.

Eventually, themes were tentatively settled as: target field, strategy, activity, learning, goal, curriculum, atmosphere, knowledge, freedom, transformative/transmissive, and policy influence. There was a great variation of representations in themes in the database; although, some tendency can be observed, for example, there are less documents (coded texts) in relation to Case study three and four in the folder of policy influence, compared to documents of Case study one and two. However, as mentioned in the analysis in the previous chapter, the analysis in this research does not aim at quantifying those documents (coded texts), but analyse the contents of them. The following sections present the evidence from database and analyse them in each case study.

Figure 14.1: Categorisation in the data base for data-led analysis



In the following sections, on the basis of this database on practice in the case studies, the practice were analysed in terms of the theoretically-paired case studies; i.e. Case study one and two; Case study three and four. In order to analyse it, the theme represented by both case studies were closely analysed. For example, in the folder of scope/ field, the documents in relation to case study were found, then they are compared and examined.

14.2 Practice in Case Study One (the WWF-UK Formal Education Team) and Case Study Two (the ESD-J)

In the previous chapter (Chapter 13), these two cases emerged as being situated in the realm of technocentrism according to O'Riordan's (1989) categorisation, and as reformists under Pepper's (1996) categorisation of environmentalism in relation to capitalism. This is because the team in the WWF-UK and the ESD-J do not believe strongly in ecocentrism, and they aim at social change to achieve sustainability. Thus, their programmes have emphasised social and economic change as well as environmental issues. Regarding education, they share similar views. For example, the WWF-UK Formal Education Team and the ESD-J encourage learning so as to transform society and hence attain sustainability, which they achieve through their support for networking and capacity building.

This section examines the WWF-UK Formal Education Team in the UK and the ESD-J in Japan, although they have similar theoretical perspective, they have been enacting different practices. The following sub sections present and discuss the significant differences in practice between these two organisations, that is the: target field, strategy, focus of learning, general support, ultimate goals and policy influences. These themes have emerged from the evidence in the observation in the database.

14.2.1 Target field: school community (the WWF-UK) vs. local community (the ESD-J)

For political reasons, different fields have been focused upon by the WWF-UK Formal Education Team and the ESD-J. School communities have been primary focus for the WWF-UK Formal Education Team, with the aim of establishing sustainability at the heart of school culture, although their work has extended to local communities to some extent. The team was determined to promote change in the school system in the UK and thus had

been engaged in a number of projects with the UK government. For example, the team has been commissioned to carry out longitudinal research in schools by the Office for Standards in Education (Ofsted) supported by the Department for Education and Skills (DfES) (See Chapter 9).

On the other hand, in Japan, it was the Ministry of Foreign Affairs (MOFA) that initiated the promotion of education for sustainable development, rather than environmentally or educationally related ministries (See Chapter 10). As a consequence, it was difficult in the early stages of education for sustainable development to set up collaborative projects with the formal education system. As explained in Chapter 10, such projects were especially difficult to establish because of the highly centralised education system in Japan. Thus, education for sustainable development was mainly developed at the local community level through the efforts of local environmental NGOs and local government who are interested in education for sustainable development, supported by the ESD-J. More recently the local NGOs have approached the local stakeholders in education and set up collaborative projects with local schools.

In summary, the main target field for the WWF-UK Formal Education Team has focused on working with schools and school communities, to change attitudes within the education system toward sustainability, whereas the ESD-J has concentrated on working with local communities particularly local NGOs and has involved not only children but also adults.

14.2.2 Strategy: "engaging with interested groups" (the WWF-UK) vs. "taking everybody on board" (the ESD-J)

The WWF-UK Formal Education Team (Birney et al., 2006, p.71) has recognised that it was important "to take different people on an innovation at various stages" as illustrated in

the figure “Normal curve of adopter” (See Figure 9.4 in Chapter 9). Based on this model, the team’s strategy in the current phase has been to engage with the “innovators” or “schools who are ready to work with us [the WWF-UK]” (Interview transcript 1.2). In other words, they have not been willing to work with random schools up to the present, but have been keen to work with schools which are already interested in sustainability or sustainable development. In this way, they attempt to avoid expending energy working with skeptical schools, which could offer resistance to change. In this vein, at interview, one of the staff put it as “we don’t want to swim against the river” (Interview transcript 1.2).

In contrast, the approach of the ESD-J appears to have been one of trying to get everybody on board. There has been no specific focus for encouraging people to join their activities, and they have attempted to recruit as many supporters as possible within their limited finances. For example, they have raised public awareness by writing and distributing leaflets and they have published pamphlets about education for sustainability, and also held workshops and lectures all over Japan. In addition, with aim of disseminating their ideas more widely across all sectors, such as NGOs, governments and business enterprises, they have held lectures and workshops.

To sum up, the approach of the WWF-UK Formal Education Team has been to focus on engaging people who are interested in sustainability and already motivated to bring about change towards sustainability, whereas the ESD-J has attempted to have everybody on board, by raising general public awareness.

14.2.3 Emphasis of learning: skill oriented (the WWF-UK) vs. content oriented (the ESD-J)

A significant difference regarding learning exists between the WWF-UK Formal Education

Team and the ESD-J, in that the Team in WWF-UK has attempted to emphasise learning 'skills' in relation to sustainability, whereas the ESD-J has focused on the 'content' of education for sustainable development.

As explained in Chapter 9, the WWF-UK has attempted to link education for sustainable development projects with other ongoing projects that been established by the education authorities. Such initiatives include: eco-schools, a healthy eating campaign in schools, the "Every Child Matters" agenda and the sustainable schools initiative. In this context the WWF-UK Formal Education Team (WWF-UK, 2007) has been advocating three principle skills for learning for sustainability: participating, systems thinking and action learning (See Chapter 9) and has focused on promoting these transferable skills, rather than the concept of education for sustainable development or learning for sustainability. In this way, they have encouraged schools to discover linkages and to get involved in other initiatives.

By contrast, the focus of the ESD-J has been to identify common themes in other education initiatives to promote education for sustainable development, for example, as showing Figure 10.5 in Chapter 10, the overlap between such activities as: development education, gender education, and peace education has been seen as fruitful territory for promoting education for sustainable development. In this vein, the ESD-J has invited experts from these different education fields to conferences, so as to identify common ground and thus to promote education for sustainable development.

14.2.4 Main work: capacity building (the WWF-UK) vs. concept building (the ESD-J)

Following on from the previous points, there are differences between the WWF-UK Formal Education Team and the ESD-J, regarding their main work. Capacity building has been one of the main occupations of the WWF-UK Formal Education Team, whereas on the other

hand, concept building in education for sustainable development has been the focus of much of the ESD-J's work.

The main tasks for the teachers and practitioners in each organisation have also been quite different. The team in the WWF-UK has employed a framework of transferable skills and the focus of their support work has been in capacity building for: principals, teachers, parents and of course the students in the school community (Birney, 2007, p5). The process of capacity building taken up by the team initially began with their engagement with schools to support skills and knowledge. Each of the participating schools was then monitored for a period time and subsequently they were encouraged to take the lead in the project themselves. A member of the WWF-UK Formal Education Team pointed out that a key dilemma of this process, for them, was to what extent they should be explicit about what they wanted to achieve. In other words, as the supposed experts on learning for sustainability, how much should they control the direction of the participants and how much they act as facilitators, giving the initiative to the schools.

By contrast, the ESD-J has attempted to focus on concept building and example (or 'case') sharing with participants (local NGOs, local government, other organisations, individuals etc.). For example, they attempted to collect examples of good practice of education for sustainable development and accumulate these in their website as knowledge resource. This might be closely connected with the previous point (14.2.3) that ESD-J focuses on learning the content of education for sustainable development. This concept-building and example-sharing approach was appreciated; however, it also brought confusion at a local level to some extent because the concept became too inclusive, unfocused and fragmented. As explained in Chapter 10, for example, some staff in different local NGOs under the support of the ESD-J made the following comments in interviews: "Previous environmental

education already includes social aspects, what is the difference between environmental education and education for sustainable development?". Moreover, the ESD-J attempted to construct a "loose network" with different local NGOs in other Asian countries and to build the concept of education for sustainable development in the bottom-up way. However, the ESD-J staff mentioned that those NGOs requested more leadership from the ESD-J, although the staff tried to encourage their concept-building in their own countries. Eventually the loose network did not work effectively and did not achieve anything.

14.2.5 Ultimate goal: "working for exit" (the WWF-UK) vs. "networking as a hub" (the ESD-J)

This could be considered to be the most critical and interesting difference between the two organisations: one has been working with the aim of exiting from projects, whereas the other has been endeavoring to connect people and increase the scope of their network.

As a part of the process of capacity-building, the final goal of the WWF-UK Formal Education Team has been to "exit" themselves from their projects and to hand them over to the school communities. As mentioned in Chapter 9, this process might be a common feature in a wider context in the UK as there are a number of "make-over" TV programmes. In those programmes, expert helps the participants until s/he become independent in improving the situation or learning by her/his own. The challenge is always the "rebound" of the participants. A WWF-UK staff member said the monitoring of schools after the intense engagement with the project is a significant period. Overall, although the ultimate aim of their capacity building is exit from the project, the intervention during the project is comparatively strong.

On the other hand, the ultimate aim of the ESD-J has been to become "a networking hub" in order "to network with NGOs and individuals and synergise their efforts" (Ninomiya-Lim, 2006, p.263). That means, the ESD-J has continued to connect people from its central position and has compiled an information data bank through its networking, which it shares with other people in the network. This approach has given rise to two important issues: how much energy should they expend to maintain the network and what will happen after the UN Decade has expired.

In light of Berlin's (2002) concept of freedom which was used for conceptualising practice in Chapter 1, the WWF-UK Formal Education Team appears to have adopted negative freedom, which delegates more freedom to learners (practitioners) to develop their capabilities for themselves. On the other hand, the ESD-J's approach could be considered as supporting positive freedom, as the organisation wishes to be at the centre so as to take a lead role in organising the education.

14.2.6 Policy influence: bottom-up approach (the WWF-UK) vs. top-down approach (the ESD-J)

The WWF-UK Formal Education Team has attempted to 'make a case' for action research, by putting forward policy suggestions and disseminating them to a wider audience. Their long term strategy has been described as a Gilman's S curve, as illustrated in the "Diffusion of innovation" figure in Chapter 9 (See Figure 9.3). The curve demonstrated a bottom-up approach: that is, it begins with experimentation, piloting projects, popularisation, electoral politics, and finally reaches to regulations.

The case of the ESD-J is totally different. First of all, education for sustainable development started with the use of a top-down approach by the Japanese government, who followed the

international agendas set by various UN agencies. The role of the ESD-J was prescribed as to make popular the concept of education for sustainable development and to encourage and support bottom-up activities in the local regions of Japan and in other Asian countries. To date, the ESD-J has attempted to raise the profile of local NGOs and local governments, involved in education for sustainable development matters, by disseminating their various activities and policy initiatives. For the next phase, they will be aiming to support the skills and knowledge related to bringing about education for sustainable development with the corresponding necessary financial support.

From this analysis, it can generally be seen that the WWF-UK has taken a more bottom-up approach when compared with the ESD-J. However, it also needs to be acknowledged that even though the ESD-J has been working in a top-down fashion it has not been forcing any parties to implement any particular practice, and on the other hand, the WWF-UK has ambition to work with the governments and utilise the power (Interview transcript 1.1).

14.2.7 Summary of the analysis on the practice in the WWF-UK and the ESD-J

Several significant differences identified above from the comparison between the practices of the WWF-UK Formal Education Team (Case study one) and the ESD-J (Case study two), in terms of: target field, strategy, focus of learning, general support, ultimate goals and policy influences. Although the practices have emerged as being significantly different in the two cases, largely owing to the different cultural and political contexts of their respective countries, in general they both share a common theoretical perspective.

The comparison between two cases is as follows. First of all, the target fields are contrasted in school community (the WWF-UK Formal Education Team) and local community (the ESD-J) because of the political reason in each country. The second contrast was their

strategy of the work; i.e. the WWF-UK Formal Education Team is engaging with interested groups at the beginning stage, although the ESD-J is trying to involve everybody to education for sustainable development. Thirdly in terms of the emphasis of learning, the WWF-UK Formal Education Team is skill-oriented in order to make a linkage between other initiatives in schools; whereas the ESD-J is content-oriented and tries to explore what education for sustainable development is, together with participants. Fourthly, the main work of the team in the WWF-UK is capacity-building and providing training staff in school communities and the ESD-J focused on concept-building of education for sustainable development with other parties. The fifth difference is the focus of their goal. The team in the WWF-UK aims to working for exit and return the project to school communities themselves; whereas the ESD-J aims to net-work as a hub. By extension, these approaches were compared to Berlin's (2002) concept of freedom and it can be possible to say that the Team is based on the approach of negative freedom; whereas the ESD-J might be the approach of positive freedom. The last significant difference is the bottom-up and top-down approach to policy influence. The team in the WWF-UK attempts to make exemplary case by action research and make a policy suggestion based on the evidence; whereas in the ESD-J, the policy initiative came from the government and the organisation is playing a role to popularise education for sustainable development.

The most surprising finding is that when the ESD-J attempted to work with other NGOs in a bottom-up way, the other NGOs requested more leadership of the organization. This shows that a bottom-up and democratic way is not always preferable and is dependent on the context. Perhaps more top-down implementation is suited to a hierarchical society; yet the question is, is strong authority appropriate for the nature of education and sustainable development? Also in the case of the WWF-UK, even though they are facilitating the capacity-building of the community, they are definitely leading the change in the school

community. The challenge is how much they can lead the change and innovation toward education for sustainable development. Hopefully more investigation will take place in the future.

14.3 The Practices of Case Study Three (the Schumacher College) and Case Study Four (Ikaruga Kousha)

In the previous chapter (Chapter 13), these two cases came out as belonging to ecocentrism, according to O'Riordan's (1989) categorisation, and more specifically the Schumacher College and Ikaruga Kousha reflect Gaianism and communalism, respectively. Moreover, both organisations emerged as having a radical view of capitalism by Pepper's (1996) categorisation: the Schumacher College's philosophy is based on deep ecology and Gaia theory and Ikaruga Kousha also respects a long term sustainability of natural resources. In addition, they share the similar views on education, namely both the Schumacher College and Ikaruga Kousha encourage personal learning in order to orientate individuals' knowledge and/or skills towards sustainability.

In this section, the Schumacher College in the UK and Ikaruga Kousha in Japan, which share a similar theoretical perspective, are discussed by comparing their different practices and offering explanations for these. The following sub-sections feature the significant differences with regards to practice, covering the; main activities, curriculum, knowledge type, atmosphere, and educational approach. These themes have emerged from the evidence in the database as mentioned in the previous section (14.1).

14.3.1 Main activities: talking (the Schumacher College) vs. doing (Ikaruga Kousha)

The most profound difference in practice between these two cases is the different activities

that occur in each institution. In the Schumacher College the main activities undertaken by the teachers, participants and students include: lecturing, talking, discussing, listening and watching. Although the college practices communal living and encourages the participants and to do the daily chores together, such as: cleaning, cooking and gardening, these activities can be regarded as only a small part of their academic life. Thus, a substantial part of the practice at the Schumacher College involves talking and exchanging abstract ideas. The assumption is made that the ideas and concepts that are discussed in the college are going to be put into practice by the course participants when they leave the college. In light of this, the new certificate course is trying to develop ways to convert this verbal communication into action in the real world. Many of the participants involved in this course come from professional backgrounds and attend on a block release basis. The intention is for them to take what they learn at the college back to their work environments and to implement action programmes consistent with its ideological stance.

On the other hand, in Ikaruga Kousha, the main activities undertaken by the disciples are the activities related to physical work, such as: measuring, sawing, carving and jointing, with comparatively little verbal communication in their work. Like at the Schumacher College, novice Ikaruga Kousha workers also do daily housework as a small contribution to the communal way of life. There is little talking in the community, because as one of the senior disciple explained (See Chapter 12), the thought processes of the disciple himself are regarded as being of more importance than asking to or discussing with others. In the other words, a carpenter in Ikaruga Kousha tries to encounter nature (mostly wood in this case) solely by himself in order to embody the skill and knowledge. Moreover, according to Master Ogawa, he does not teach his technique systematically, but lets the disciples learn by doing in the real work situation. The carpentry activities associated with the initial stages of the construction are undertaken in their workshop, for example: cutting and carving wood

and making parts, then the processed wood is moved to the construction site for jointing and final assembly. During this time, the disciples reside near to the construction site, which could be anywhere in Japan, and continue their communal way of life near the site.

The contrasting activities between the Schumacher College and Ikaruga Kousha could be the difference between liberal and vocational education activities as explored during the discussion of categorisation by socially-critical environmental education (See Fien, 1993 in Chapter 1). Particularly Kemmis (Kemmis, 1983; Kemmis, Cole & Sugget, 1983) described vocational education as preparation for work and liberal education as preparation for life. In this light, Ikaruga Kousha is based on the job training and the jobs done by disciples are all paid. On the contrary, the Schumacher College might share the similar view with liberal education. Particularly, based on the observation of the college, it can be said that the college might be similar to an image of original meaning of "school" (schole) in Greek which denotes "leisure" or luxurious opportunity for learning by participants who can afford to do it, which pointed out the last chapter (Section 13.5).

14.3.2 Curriculum: content-oriented (the Schumacher College) vs. skill-oriented (Ikaruga Kousha)

The previous contrast highlighted regarding the main activities of these two case studies, could be due to the different curricula. In the Schumacher College, the curriculum is oriented towards content, whereas that of Ikaruga Kousha is oriented towards skills.

In the Schumacher College, because it is a *college*, there is a preset curriculum for the teachers to deliver. However, unlike much mainstream education in the UK, lessons are not preplanned in substantial detail and there is no clearly defined curriculum from one year to the next. Also according to director, the short courses are planned each year, considering

various elements such as public interest, teachers' availability, and feedback from the previous participants, and so on (Interview transcript 4.1). In particular, the short courses are designed according to a specific teacher's interest in a topic, such as: science and spirituality, climate change, the new economics and slow food.

By contrast, in Ikaruga Kousha, although the overall aim of the company is to train a competent shrine carpenter, no set curriculum is followed. Ikaruga Kousha disciples receive Kuden (traditional oral literature) passed down from the previous masters; however, it is only symbolic of their philosophy and all the skills to be learned are not spelt out in detail like in a text book. As one senior disciple mentioned during interview (Interview transcript 4.3), he did not know what he was doing during the first three years of training. However, once he had experienced the whole process of one particular construction project from the beginning to the end (which took about three years), he came to understand more about the details within a big picture and thus was able to make sense of what he was doing. It is by following this experiential learning process that the disciples embody the knowledge and skills of carpentry for themselves.

14.3.3 Knowledge types: intellectual knowledge (the Schumacher College) vs. embodied knowledge (Ikaruga Kousha)

In the Schumacher College, the knowing that participants and students gain is based on the acquisition of intellectual and academic knowledge, which could be equated with abstractions, i.e. philosophies, theories, concepts, models, ideas and thoughts related to sustainability, deep ecology and Gaia theory. In particular, the college attempts to promulgate alternative theses to those based on Western reductionism. Although they accept this kind of knowledge as the starting point for environmental education, they take the view that it has been the cause of environmental problems and as such needs to be critically

evaluated with the aim of changing it.

By contrast, the knowing in Ikaruga Kousha is oriented towards embodied knowledge, whereby most of their knowledge and skills are mastered in the situation by trial and error[32] (i.e. on the job training) and this mastery cannot be spoken about or written down in a comprehensive meaningful way. This is consistent with skills acquisition through apprenticeships.

This above contrast reflects high-status knowledge and low status knowledge, respectively, found in Bower's (2000) concepts and similarly ideas posited by Orr (1994) (See Chapter 3). They have depicted high-status knowledge as one of the main causes of the environmental crisis.

14.3.4 Atmosphere: equal (the Schumacher College) vs. hierarchical (Ikaruga Kousha)

The most profound difference in the practices of these organisations relates to the atmosphere or the culture within the organisation. The Schumacher College is apparently more equal and friendly within the institution, whereas Ikaruga Kousha appears to have a strongly rule-based and hierarchical atmosphere.

The Schumacher College is open to various people 'in theory' (the limitation is already discussed in the previous chapter) whether: from the UK or overseas; whether young or old; whether male or female; whether disabled or not. Of course, for the masters course, the candidate needs to meet the standards required to be able to enrol; however, the College is

[32] However, the training was carefully supervised by seniors since they cannot afford a lot of errors because it is a *company* in the end (it needs to pursue a profit to pay disciples' salaries) and also because they have a respectful attitude toward nature as precious resource which detailed in the previous chapter (Chapter 13).

relatively open to the people who are interested in the College except that it is fee paying course which also pointed out in the previous chapter (Chapter 13). The learning atmosphere inside of the College is friendly and welcoming, and everybody is treated equally no matter what nationalities, ages and profession. For example, this was evidenced by one of the participants, an 80 year-old woman point out that everybody can sit anywhere they like in the College (See Chapter 12).

On the other hand, in Ikaruga Kousha recruitment levels are restricted because it is a paid vocation. In particular Ikaruga Kousha prefers job applications from young people because of the 10 year apprenticeship, and from males rather than the female, because the job is physical. However, this is not a set arrangement and there have been women employees in the past. Opportunities to join to the company are quite limited and as Master Ogawa mentioned, out of 300 applications in the previous year, he only recruited five young men. In the interview, Ogawa (Interview transcript 4.2) mentioned the difficulties of choosing prospective disciples since some of them left so easily within a short period even though they seemed to be enthusiastic at their first visits (job interviews). These experiences made him suspicious and dubious, thus he does not have a clear criteria of choosing employee anymore: “I’ll try the person who comes to me when I am in a good mood” (Interview transcript 4.2).

Inside of Ikaruga Kousha, all the employees are positioned in a hierarchical manner and played out their assigned roles according to this structure. For instance, when it came to dining, this researcher, as an outsider, was completely at a loss knowing where to sit (because the seat seemed to be reserved in a hierarchical manner) and the master or a disciple had to direct her where to sit. At dinner time, the researcher sat in front of the master and was treated as a guest. However, for breakfast and lunch, the she sat at a lower

status position, as befitted the researcher, being a newcomer to the community.

14.3.5 Learning: positive freedom (the Schumacher College) vs. negative freedom (Ikaruga Kousha)

In the case of the Schumacher College, the education is based on its short courses and masters course, which promulgate an alternative way of thinking about sustainability. Although the college's courses' distinctive feature lies in their transformative learning approach, the choice and design of the courses content rest in the hands of the college. This situation appears to lead to an opportunity for the college to become a "master" (Berlin, 2002) that is to say, a source of alternative ideas and thoughts regarding sustainability. However, teachers delivering the courses did emerge as 'authoritative' characters (from the evidence from the interviews with the participants and also the participated observation, See Chapter 12), but not as much as described in Berlin's positive freedom. For example, the teachers' role appears to propose alternative thoughts and ideas in the form of choices and not as directive. However, there was little room to critically discuss with the teachers and in fact the participants cannot criticise the teachers, although outside the lectures, course participants were judging and critically analysing the lectures which they attended. Of course, students can make their own decisions as to whether the knowledge that they learnt was useful and how the concepts could be applied to their own contexts.

In Ikaruga Kousha, there is one recognised master of the craftsmanship, Ogawa, and from the atmosphere in Ikaruga Kousha, it appeared to be very hierarchical (in the previous section 14.3.4). However, Ogawa does not actively get involved in teaching craft techniques. Instead, he expects the disciples to learn techniques from him as the master and from other more senior carpenters by observing them. Thus, the role of the master in Ikaruga Kousha possibly appears as different from the notion of "master" depicted in Berlin's (2002)

concept of positive freedom. According to Berlin's concept a "master" figure has more authority that even amounts to coercive power. In Ikaruga Kousha, in terms of learning, disciples enjoy a certain freedom i.e. that of working to transform themselves by improving their personal carpentry skills. It was evidenced from the observation that they opt to work until late night, and also they sharpen the knives and take care of their own tools during their own free time. That is to say, there is freedom in learning in Ikaruga Kousha; however, as a community of carpenters, they are duty bound to work within the philosophy of Ikaruga Kousha and must transmit their knowledge and skills to the next generation.

Thus it might be surmised that the fundamental approach in the Schumacher College tends to be approximate to Berlin's concept of positive freedom, whilst Ikaruga Kousha's approach appears to be more aligned with the concept of negative freedom.

14.3.6 Summary of the analysis of the practice in the Schumacher College and Ikaruga Kousha

The analysis of the Schumacher College (Case study three) and Ikaruga Kousha (Case study four) has indicated that significant differences emerge, in terms of: their main activities, the curriculum, the knowledge type, the organisational atmosphere, and education approach. Whilst the two case-studies share some theoretical perspectives, their practices differ.

The contrasts between two case studies are as follows. Firstly, the main activities in each case are contrasted in talking and doing. In the Schumacher College, the main activities are oriented to talking about intellectual topics, and the activities in Ikaaruga Kousha are focused on doing the jobs. Secondly, in terms of the emphasis of curriculum, Schumacher College is content-oriented in order to introduce alternative knowledge and viewpoints; whereas Ikaruga Kousha is skill-oriented and there is no systematic curriculum because of

the nature of apprenticeship. Thirdly, those two cases emphasise different types of knowledge: the Schumacher College is oriented towards abstract knowledge; whereas Ikaruga Kousha respects embodied knowledge which can be gained through on the job training. Fourthly, the atmosphere between two are quite different. The Schumacher College is open to any people who want to lean their unique ideas of deep ecology; on the other hand, Ikaruga Kousha recruits people exclusively in order to raise them as special carpenters. Last but not least, the most significant differences in their practices are in their approach to education. That is, in Berlin's (2002) concept of freedom, education in the Schumacher College might be based on more positive freedom, though education in Ikaruga Kousha might come from the philosophical base of negative freedom.

14.4 Summary of the Chapter

This chapter has analysed the practices of the four case studies and compared them in pairs which were considered to have shared theoretical perspectives (See Chapter 13). That is to say, the WWF-UK Formal Education Team and the ESD-J were compared and the Schumacher College and Ikaruga Kousha likewise. In light of Berlin's (2002) concept of freedom, the analysis was that the WWF-UK Formal Education Team in the UK and Ikaruga Kousha in Japan appeared to be based on the concept of negative freedom, whilst the ESD-J in Japan and the Schumacher College in the UK appeared to be based on the concept of positive freedom. Also in light of educational practice (transmissive and transformative), the WWF-UK Formal Education Team and the ESD-J orients to transformative practice; whereas the Schumacher College and Ikaruga Kousha orients to transmissive practice in general though they focus on transformation at personal level of learning. The practices in four case studies are distinguished as the following figure (Figure 14.2) according to the four dimensions of practice developed in Chapter 1 (Figure 1.3)[33]:

[33] Figure 1.3: Two dimensions of freedom and education practice

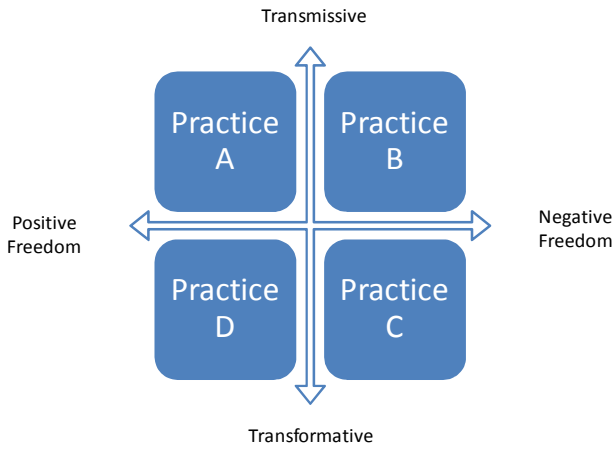
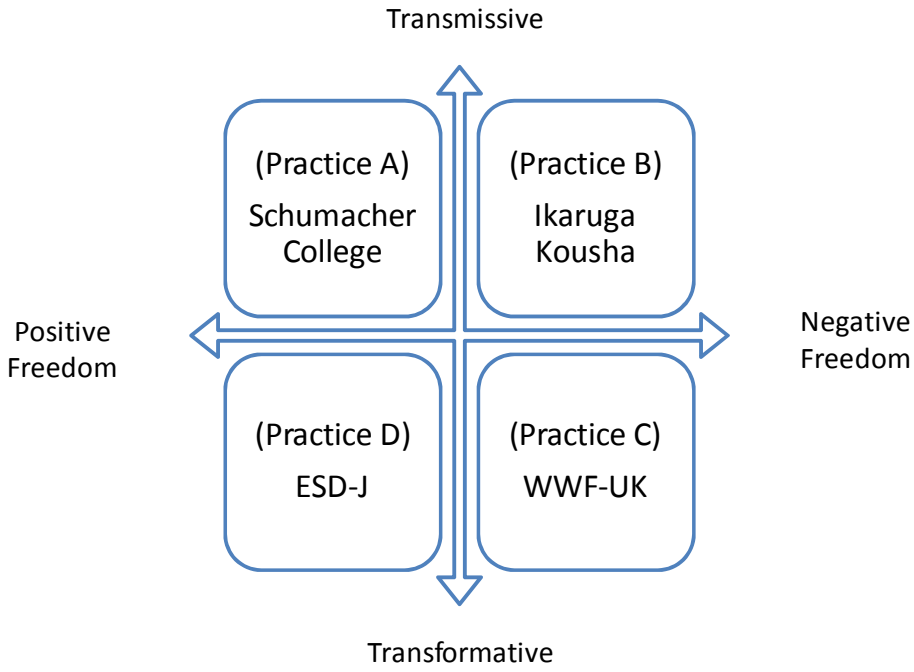


Figure 14.2: Application of 'the dimensions of practice' to four case studies



In the next chapter, effectiveness particularly concerning with the three layers of variables in practice (i.e. the perspective of context, ideology, and practice) in all four case studies will be discussed, so as to allow for the consideration of the research questions and permit conclusions to be drawn regarding this study.

Chapter 15

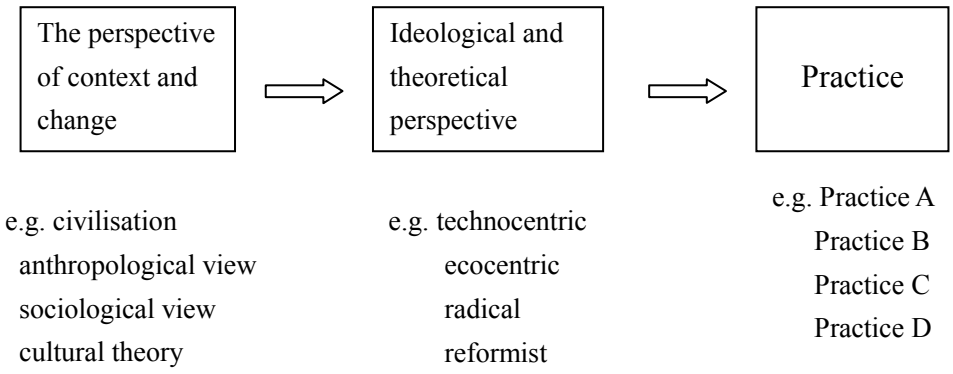
Contexts and Effectiveness of Practice

With regards to the previous two chapters, Chapter 13 detailed thematic analysis was carried out for each case in terms of their theoretical perspectives by using database. Then the findings led to pair those case studies that were identified as having similar theoretical organisational perspectives and. More specifically, Case study one (the WWF-UK Formal Education Team) and Case study two (the ESD-J) were considered as being based on the technocentric view, and Case study three (the Schumacher College) and Case study four (Ikaruga Kousha) were seen to be based on the ecocentric view according to O'Riordan's (1989) categorisation of environmentalism. Following on from this analysis, Chapter 14 presented data-led analysis by using the database, and illuminated the differences in practice between those pairs of case studies which emerged as holding similar perspectives. For example, the practices of the WWF-UK Formal Education Team and the ESD-J were compared and appeared to be based on the concept of negative and positive freedom, respectively. In addition, the practices of the Schumacher College and Ikaruga Kousha appeared to be based on the concept of positive and negative freedom, respectively (See Figure 14.1). Thus the practices in each of the paired cases were found to be different, with regards to the dimension of freedom, even though they have adopted similar theoretical and ideological perspectives.

Using the analysis in those previous chapters (Chapter 13 & 14), this chapter discusses how effective these cases are in light of the analytical framework of effectiveness. The analytical framework of effectiveness was conceptualised on the basis of the concept of effectiveness (Scott & Gough 2003) drawing on double-loop learning (Argyris & Schön, 1978; Argyris, 2005), and the concept of root metaphor (Bowers, 2002) in Chapter 1. The framework

incorporated three layers of variables in practice (i.e. the perspective of context; ideology; and practice) as the following figure (Figure 15.1):

Figure 15.1: The three layers of variables in practice



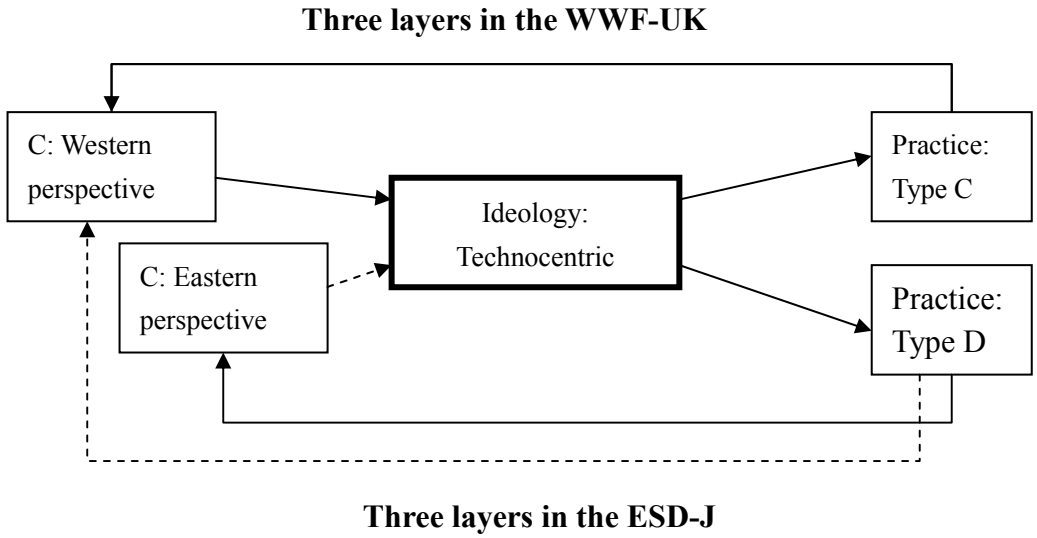
This is analysed by focusing on the common theoretical perspectives of each of the pairs identified above and identifying the differences in practice that emerged from this in order to explore how the view of the context relates to different kinds of practices. Moreover, this discussion draws on the content of the literature review with regards to each organisation's perspective of context and change (See Chapter 3). The first section (15.1) approaches context in terms of different geographies, as categorised by Huntington (1997). The second section (15.2) focuses on context as seen through the anthropological lens and the third section (15.3) discusses sociological view of context and the final section (15.4) analyse in light of cultural theory (Thompson, Ellis & Wildavsky, 1990). As mentioned in Chapter 3, no single context controls destiny (Sen, 2006) and as has become apparent in this research, a whole complex of contexts needs to be considered in order to understand the practice that emerges.

15.1 The Difference of Civilisations

In this research, the case studies were selected from two countries: the UK and Japan. According to the categorisation of civilisation by Huntington (1993, 1997), the UK is categorised as coming under Western civilisation and Japan is grouped in the Japonic civilisation, among the eight different kinds of civilisation (See Chapter 3). Western civilisation is geographically situated in Western Europe and North America, but also includes other Europeanised countries, such as Australia and New Zealand. On the other hand, Japan is considered to be a hybrid of the Sinic and old Buddhist civilisations. The Sinic civilisations comprise: China, Korea, Singapore, Taiwan and Vietnam, and they are distinct because of their shared Confucian philosophy. Whereas, the Buddist civilisations include: Bhutan, Cambodia, Laos, Mongolia. Under a broader categorisation, the Sinic, Hindu, Buddhist and Japonic civilizations can be merged into a single civilization called the East.

The practice, the context of geography of the WWF-UK Formal Education Team and the ESD-J is illustrated in Figure 15.2.

Figure 15.2: Three layers of variables in terms of the different civilisations (the WWF-UK Formal Education Team and the ESD-J)



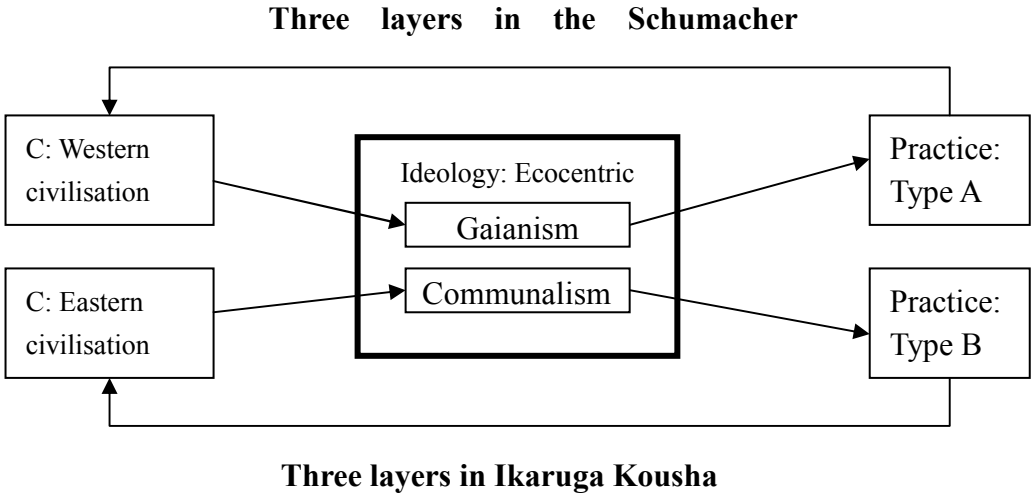
(Note: C stands for the perspective of context and change. Practice type C is the practice oriented toward negative freedom and transformative learning. Practice type D is the practice oriented positive freedom and transformative learning)

In light of Huntington's categorisation of civilisations (1993, 1997), the WWF-UK Formal Education Team, which is geographically located in the UK, is categorised as being located in the Western civilisation. Moreover, even though the WWF-UK Formal Education Team takes similar view to that of the ESD-J, in that they both take a technocentric view, the practice of the former differs from that of the latter, in that it is oriented towards negative freedom and transformative education (Practice Type C). That is to say, its ideological perspective (technocentric ideology) has been influenced by the context (Western civilisation) and resulted in a different form of practice (Practice Type C).

The ESD-J, on the other hand, can be categorised as being in a Japonic or Eastern civilisation, according to Huntington (1993, 1997). However, most of the embedded ideas of the ESD-J have been influenced by the Western countries and the view of Western civilisation, in that the practice of the ESD-J is oriented to the positive freedom and transformative education (Practice Type D). As a consequence this organisation's perspective of context and practice emerged as being misaligned with the perspectives of the local NGOs in Japan and Asian countries (See Chapter 9) with which they were involved. That is to say, the latter's Confucian disposition led to misunderstandings in the roles of the different organisations. In Japanese civilisation, as Oe (1994) has pointed out (See Chapter 3), there is a certain ambivalence towards the cultures of the West and the East and this is why the ESD-J is aware of the need to form a balance in their practice, in this context.

The next comparison involves the Schumacher College and Ikaruga Kousha (See Figure 15.3).

Figure 15.3: Three layers of variables in the terms of the different civilisations (the Schumacher College and Ikaruga Kousha)



(Note: C stands for the perspective of context and change. Practice type A is the practice oriented toward positive freedom and transformative learning. Practice Type B is the practice oriented negative freedom and transmissive learning.).

Within the categorisation of civilisations (Huntington, 1993, 1997), the former is categorised as Western. Even though the Schumacher College has a similar ideology to that of Ikaruga Kousha, in that they both have an ecocentric view, their two practices differ. That of the Schumacher College is oriented towards positive freedom and transmissive education (Practice type A) and their theoretical perspective (ecocentric ideology) has been influenced by the context of their location (Western civilisation), resulting in Practice type A. Their practice was consistent with the context.

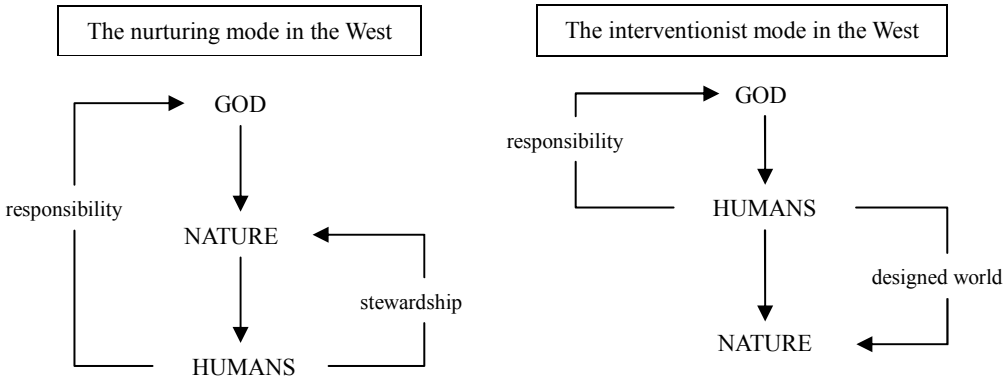
Ikaruga Kousha, located in Japan, emerges as categorised in Japonic or Eastern civilisation, according to Huntington's scheme (1993, 1997). Its philosophy and ideas are based on Eastern religions such as Buddhism and Confucianism (See Chapter 12). Their practice is oriented to the negative freedom and transformative education (Practice type B). The perspective of context and practice are consistent with each other.

Schumacher College and Ikaruga Kousha, share a similar ideology in general, that being ecocentrism (O'Riordan, 1989). However, when considered in detail their perspectives can be divided into Gaianism and communalism, respectively (See Chapter 13). In particular, the case of Ikaruga Kousha is difficult to locate within O'Riordan's categorisation, because their views are ambivalent between "nature as resource" and "nature has intrinsic value". This could be because O'Riordan's (1989) categorisation has been derived from the monotheistic viewpoint typical of Western societies. According to the figure by O'Riordan (Figure 2.1 in Chapter 2), nature is created by God and human beings have been vested with the responsibility of taking care of it. That is, people in these societies should take on the stewardship for protecting nature on behalf of God.

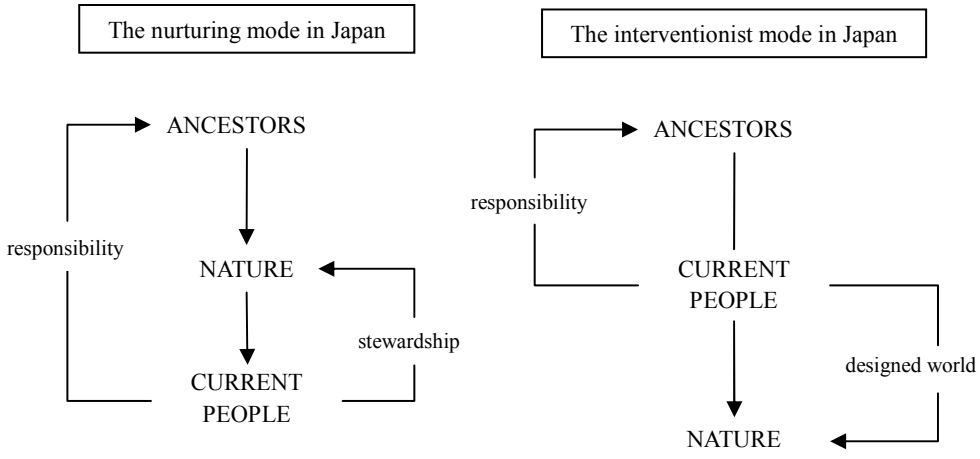
However, Japanese society, being based on polytheism, does not concur with this belief and responsibility for protecting nature is seen to be something conferred on them by their ancestors. This distinction between the relationships with nature in the Western and Japanese societies is illustrated in the following figure (Figure 15.4), which is a modification of O'Riordan's figure as presented in Chapter 2 (Figure 2.1).

Figure 15.4: People's relationship with nature in the West and in Japan

The relationship between nature and humans in the West (O'Riordan,



Relationship of nature and humans in Japan (a modification of O'Riordan's frame by the author)



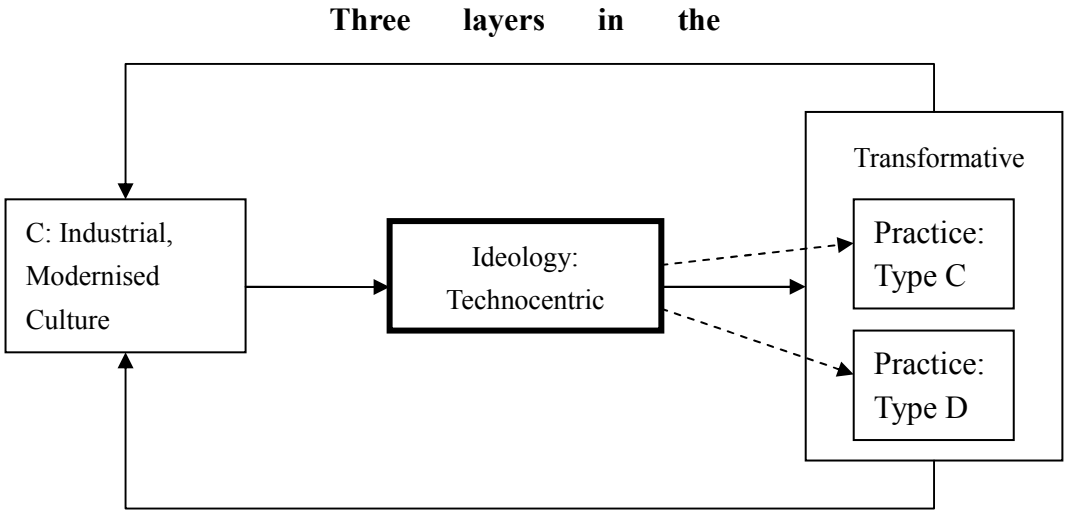
In the Japanese context illustrated above, because the ancestors are perceived as sorts of gods under the Buddhist doctrine (also in the Shinto religion) and because these ancestors modified and managed nature for the people of today, it is difficult for people with this perspective to separate gods from humans. That is to say, the Japanese root metaphor has been generally grounded in anthropocentric views. This difference also affects the divide in different practices in the Schumacher College and Ikaruga Kousha.

15.2 The Anthropological View of Context

Anthropological views of context were developed from the exploration of modernised, industrial, agricultural and indigenous culture (See Chapter 3).

The process of activities of the WWF-UK Formal Education Team and the ESD-J are illustrated in Figure 15.5.

Figure 15.5: Three layers of variables in terms of the different anthropological views (the WWF-UK Formal Education Team and the ESD-J)



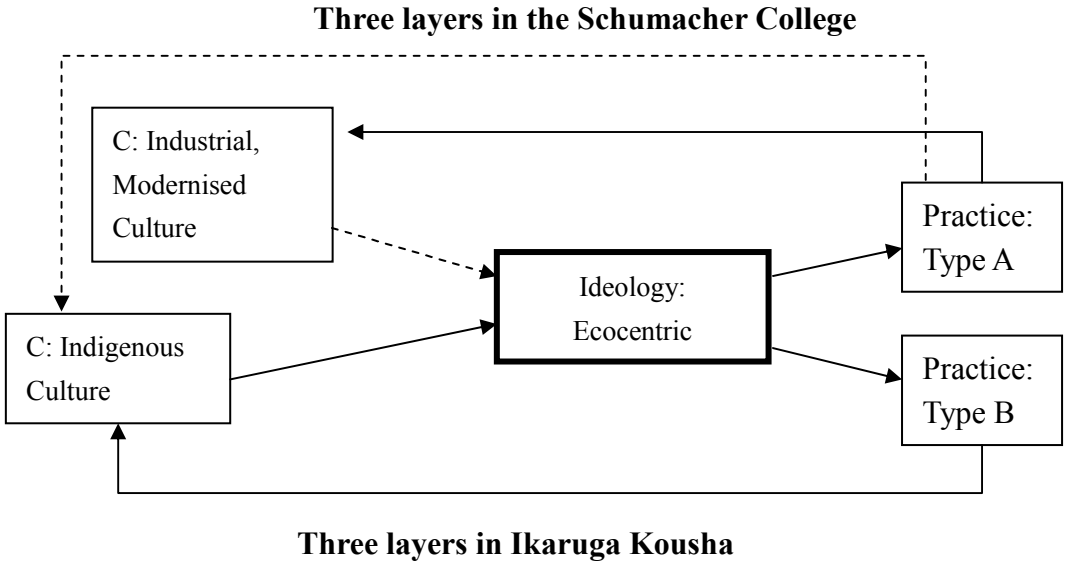
(Note: C stands for the perspective of context and change. Practice type C is the practice oriented toward negative freedom and transformative learning. Practice type D is the practice oriented positive freedom and transformative learning.)

With regard to the anthropological aspect, the WWF-UK Formal Education Team's practice is based in a modern and industrial culture, which accepts high levels of technology and places its trust in modern Western science (See Chapter 13). Likewise, the ESD-J's practice is based on a similar root-metaphor, i.e. that of modern industrial culture, as evidenced by their ideological perspective (See Chapter 13).

The WWF-UK Formal Education Team and the ESD-J take a similar perspective of context and ideology; however, their practice emerged as being distinct. The practice of the Education Team is oriented towards negative freedom and transformative education (Practice Type C), whereas the practice of the ESD-J is oriented towards positive freedom and transformative education (Practice Type D). The case studies have different type of practice while they hold common view of context and ideology.

The practice of the Schumacher College and Ikaruga Kousha is depicted in the next figure, Figure 15.6.

Figure 15.6: Three layers of variables in terms of the different anthropological views (the Schumacher College and Ikaruga Kousha)



(Note: C stands for the perspective of context and change. Practice type A is the practice oriented toward positive freedom and transformative learning. Practice Type B is the practice oriented negative freedom and transmissive learning.).

Considering the anthropological aspect, Ikaruga Kousha activity is based on a preference for the indigenous culture over one that is modern and industrial (See Chapter 13). This is evidenced by their approach that is anti-technology and therefore anti-Western (See Chapter

13). The practice of Ikaruga Kousha is oriented towards negative freedom and transformative education (Practice Type B). The ideological perspective (ecocentric ideology) was mediated by the perspective of context (indigenous culture) and resulted in the different practice (Practice Type C). This practice was consistent without confliction with the view of context.

Ikaruga Kousha and the Schumacher College have adopted the same perspective of context, i.e. indigenous sustainable culture. However, their practice has diverged - in one aspect in particular, that is they work with different types of knowledge. In the case of the Schumacher College high-status knowledge is preferred whereas for that of the Ikaruga Kousha the preference is for low-status knowledge. In this regard, high-status knowledge refers to that derived from the modern Western reductionist view of knowledge (Bowers 2000, 2001; Orr 1994).

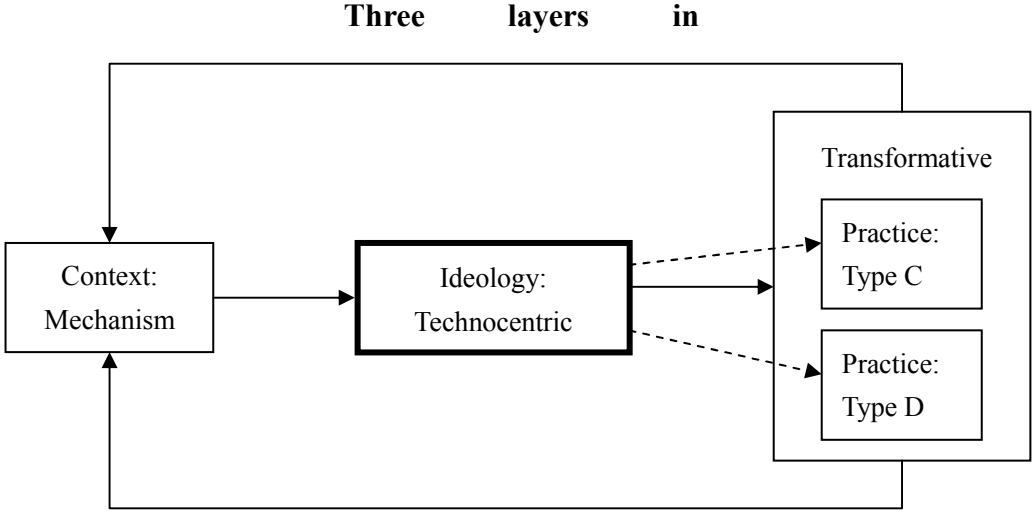
Schumacher College bases its practice on the Western civilisation view, as seen in the previous section (15.1). Most of the embedded ideas in the Schumacher College are influenced by the culture of Western countries. However, they actually prefer an ecocentric ideology based on the view of indigenous and non-Western societies. Their practice is oriented towards positive freedom and transmissive education (Practice type A).That is to say, the perspective of context and practice are slightly inconsistent, as evidenced by the contradiction between what they espouse (i.e. a preference for an indigenous sustainable culture) and what they do in practice (carry out Western style education) (See Chapter 11). That is why the Schumacher College needs to take care of their ineffectiveness as shown in the three layers.

15.3 The Sociological View of Context

Sociological views of context such as mechanism and organicism were developed from the exploration of Western science which was then linked to a discussion of paradigm change regarding environmental education (See Chapter 3).

The practice according to the sociological view of context in the WWF-UK Formal Education Team and the ESD-J is depicted in Figure 15.7 below.

Figure 15.7: Three layers of variables in terms of sociological views of WWF-UK Formal Education Team and ESD-J



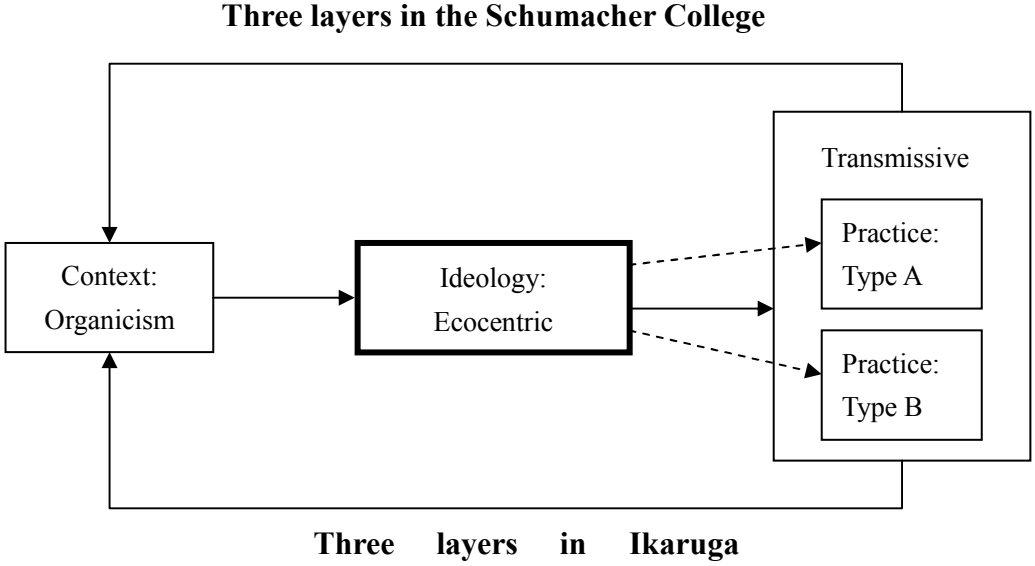
(Note: C denotes the view of context. Practice type C is the practice oriented toward negative freedom and transformative learning. Practice type D is the practice oriented positive freedom and transformative learning.)

Under the sociological aspect, the activities of the WWF-UK Formal Education Team and the ESD-J are based on a mechanistic view of society regarding in the way that they want to create change in society toward sustainability. Education is regarded as an instrumental tool for achieving that goal thus practices in both tend to be transformative. However, a partial

difference has emerged in practice, namely that the WWF-UK Formal Education Team tends towards a negative view of freedom whereas the ESD-J adopts a positive view. This particular difference cannot be reflected by the context of mechanism and technocentric ideology. It must be influenced by the other variables.

The sociological view of context in the Schumacher College and Ikaruga Kousha is presented in Figure 15.8 below.

Figure 15.8: Three layers of variables in terms of sociological views of both Schumacher College and Ikaruga Kousha



(Note: C stands for the perspective of context and change. Practice type A is the practice oriented toward positive freedom and transformative learning. Practice Type B is the practice oriented negative freedom and transmissive learning.).

Following this approach, the Schumacher College and Ikaruga Kousha are based on an organic view of society as they believe that sustainability is a delicate relationship between nature and humans best approached through a transmissive type of practice. The Schumacher College and Ikaruga Kousha take similar views of practice in terms in that they

are both of the transmissive type, but the preferred dimension of freedom is different. The practice of the Schumacher College is oriented towards positive freedom, whereas on the other hand, the practice of Ikaruga Kousha is oriented to the negative freedom, therefore these differences have not occurred because of the root metaphor adopted, and other variables must have exerted a substantial influence.

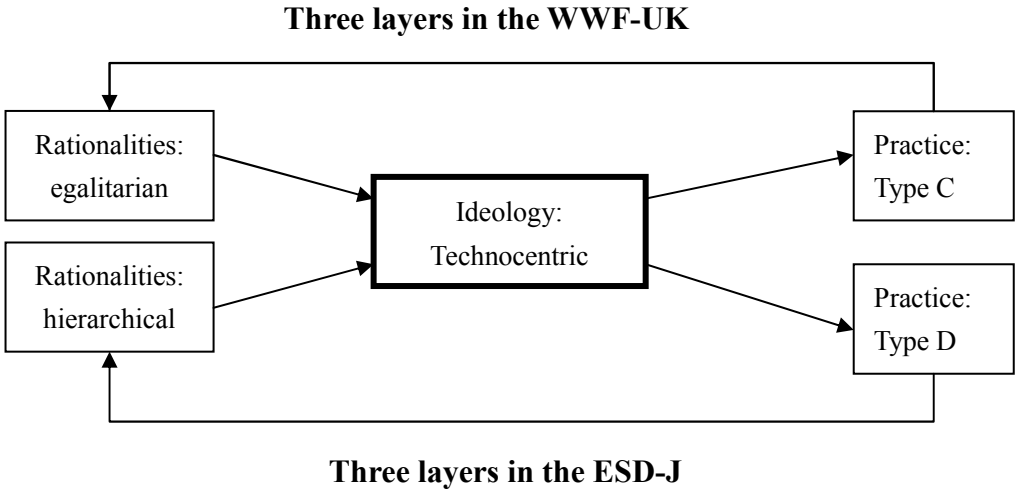
As seen in the both analysis, the mechanistic view or organic view of society influenced to the choice of transformative approach or transmissive approach; however not to the difference of type of freedom.

15.4 Cultural Theory

With regards to cultural theory (James & Thompson 1989, Thompson, Ellis & Wildavsky 1990, Thompson 1990, Schwarz & Thompson 1990, Thompson 1997), it has emerged that three layers has taken different forms in each of the case studies.

The practice of the WWF-UK Formal Education Team and the ESD-J is depicted in Figure 15.9.

Figure 15.9: Three layers of variables in terms of the different rationalities of the WWF-UK Formal Education Team and the ESD-J



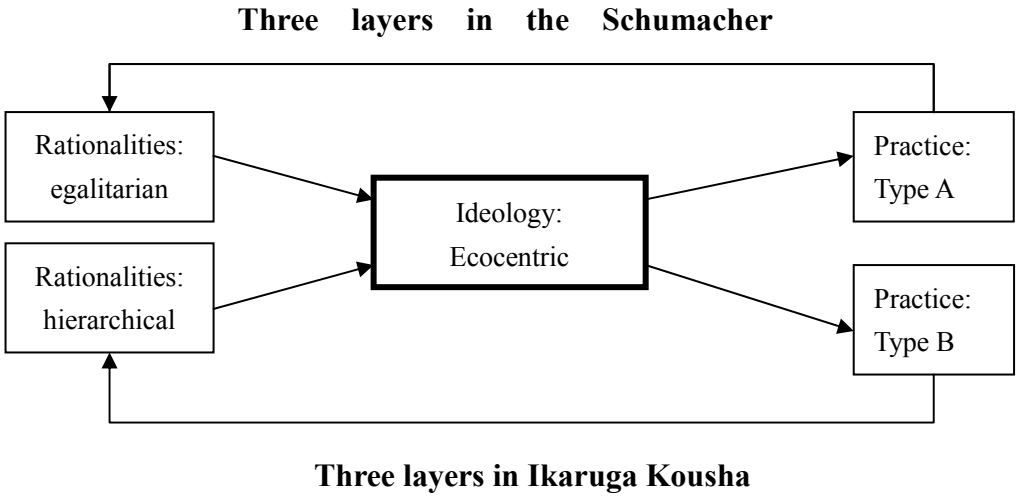
(Note: Practice type C is the practice oriented toward negative freedom and transformative learning. Practice type D is the practice oriented positive freedom and transformative learning.)

In the context of cultural theory, the WWF-UK Formal Education Team has been basing its activities on an egalitarian view, which involves critical rationalities and includes the belief that 'nature is ephemeral'. This is evidenced in their idea that sustainability is about caring and also in that the approach of the team is to develop knowledge and skills for sustainability in a bottom-up way. Even though the WWF-UK Formal Education Team takes similar view with the ESD-J, in that they both take a technocentric ideological view, the practice of the former differs to that of the latter. The team in the WWF-UK is oriented towards negative freedom and transformative education (Practice type C). That is to say, the theoretical perspective (technocentric ideology) was mediated by the context (egalitarian rationalities) and resulted in the different practice (Practice type C).

The ESD-J, on the other hand, according to cultural theory, bases its practice on a hierarchical view which is underlined by procedural rationalities such as the view that there is 'a place for everything'. This view is evidenced in that the ESD-J promotes education for sustainable development in a centralised way and attempts to involve different educational experts as much as possible. The practice of the ESD-J is oriented towards positive freedom and transformative education (Practice type D). Even though the ESD-J takes similar view to that of the WWF-UK Formal Education Team, i.e. a technocentric ideological view, the practice of the former differs to that of the latter. The practice of the Team is oriented to the positive freedom and transformative education (Practice type D). That is to say, the theoretical perspective (technocentric ideology) was 'mediated' by the context (hierarchical rationalities) and resulted in the different practice (Practice type D).

The practice of the Schumacher College and Ikaruga Kousha is illustrated in Figure 15.10.

Figure 15.10: Three layers of variables in terms of the different rationalities in the Schumacher College and Ikaruga Kousha



(Note: Practice type A is the practice oriented toward positive freedom and transformative learning. Practice Type B is the practice oriented negative freedom and transmissive learning.).

In the context of cultural theory, the Schumacher College is based on an egalitarian view which embraces critical rationality and the belief that nature is ephemeral (See Chapters 11 and 13). Even though the Schumacher College takes a similar view to that of Ikaruga Kousha, i.e. an ecocentric ideological view, the practice of the former differs to that of the latter. The practice of the Schumacher College is oriented towards a positive freedom and transmissive educational approach (Practice type A). That is to say, the theoretical perspective (ecocentric ideology), as in the case above, has been mediated by the context (egalitarian rationalities) and hence has resulted in different forms of practice (Practice Type A). This practice was consistent without confliction with the view of context.

On the other hand, according to cultural theory, Ikaruga Kousha is based on hierarchical views which include the procedural rationality and the belief that nature can be preservable and tolerable (See Chapter 12 and 13). The practice of Ikaruga Kousha is oriented towards negative freedom and transformative education (Practice type B) and particularly the practice of Ikaruga Kousha can be represented as on the basis of hierarchical rationality in the fact that the Master has a philosophy of "everybody has a place" and he applies this idea to nature as well (See Chapter 14). Even though the Ikaruga Kousha takes a similar view to that of the Schumacher College, i.e. an ecocentric ideological view, the practice of the former differs from that of the latter. That is to say, the theoretical perspective (ecocentric ideology) has been intervened mediated by the context (hierarchical rationalities) and resulted in the different practice (Practice type B). This practice was consistent without confliction with the view of context.

Synthesising the cultural perspective for the two pairs of organisations, what emerges is that two of the four elements of cultural theory as described in Chapter 3, have influenced practice significantly, namely the egalitarian and hierarchical rationalities in these

organisations.

15.5 Summary of the Chapter

This chapter has examined how effective each case is in light of the analytical framework of effectiveness in this research, i.e. three layers of variables in practice, which was drawn by reference to double-loop learning (Argyris & Schön, 1978; Argyris 2005) and the concept of root metaphor (Bowers 2002). In the first section, the different view of context, in terms of civilisation, was addressed. The views of the West and the East have affected the practice in different ways. However, in one of the Japanese case studies, namely that of the ESD-J, it has emerged that its practice has been influenced by the Western thought, that is they have not relied solely on Eastern outlooks. The second section examined anthropological approaches to context. The industrial and modernised view of context was seen to have influenced the practice on both the WWF-UK Formal Education Team and the ESD-J. By contrast, the indigenous view of context was the concern of both the Schumacher College and Ikaruga Kousha; however, practice in the Schumacher College was also affected by a modernistic view and there can be seen slight inconsistency on the three dimensions. The third section discussed sociological dimensions of context and it was found that a mechanistic view of context influenced the practice for both the WWF-UK Formal Education Team and the ESD-J, whereas on the other hand an organic view of context affected the practice of both the Schumacher College and Ikaruga Kousha. The last section addressed cultural theory in terms of practice. Within the common technocentric ideology, the egalitarian view formed the practice of WWF-UK Formal Education Team, whereas the hierarchical view formed the practice of ESD-J. Also, within the common ecocentric ideology, the egalitarian view influenced the practice of Schumacher College and the hierarchical view influenced Ikaruga Kousha.

Chapter 16

Synthesis and Conclusion

This research examined issues of theory into practice in environmental education. It posed two research questions: How does theory inform practice in environmental education? (RQ 1), and how can theory improve practice in environmental education? (RQ2). In this last chapter, the key findings in the case studies are synthesised in the first section (16.1) in order to summarise the understanding of the operationalisation of theory into practice in environmental education in relation to RQ1. This is followed by six recommendations, in order to examine improvement in the operationalisation in relation to RQ2, specifically putting forward proposals for policy and practice in environmental education in the later sections (16.2 and 16.3). In addition, the theoretical contribution of this research is highlighted (16.4) and methodological reflections are presented (16.5).

16.1 Synthesis of the Analysis

This section presents the synthesis of case study analysis, in particular drawing on the content of chapters 13, 14 and 15. These findings have been presented in each case-study with regards to their: ideological perspectives (Chapter 13), practice (Chapter 14) and the perspective of contexts (Chapter 15). This synthesis helps to identify the problems and the future prospects for each case-study site.

16.1.1 Finding One: There are effective environmental education practices in both countries, that have been informed by both technocentric and ecocentric ideologies.

As seen in Chapter 13, environmental education practice informed by forms of technocentric ideology has been demonstrated in the UK (Case study one: the WWF-UK

Formal Education Team) and in Japan (Case study two: the ESD-J). In addition, environmental education practice informed by forms of ecocentric ideology has been observed in the UK (Case study three: the Schumacher College) and in Japan (Case study four: Ikaruga Kousha). This would suggest that these two contrasting ideologies can be adopted regardless of their being a different perspective of context. That is to say, cultural or geographical criteria are not necessarily determinants which form of environmental education ideology is adopted.

However, in the case of Ikaruga Kousha given a strong ideological perspective rooted in respect and deference towards ancestors, it became apparent that this was very different from a Western perspective (See Figure 15.4 in Chapter 15). That is to say, an extreme ecocentric ideological viewpoint such as deep ecology, might prove difficult in forming a basis for practice in the non-Western context. Ecocentricity is not a sufficient condition for transferability across contexts.

16.1.2 Finding Two: The cases informed by technocentric ideologies tended towards transformative practice in environmental education, whereas the cases informed by ecocentric ideologies tended towards transmissive practice.

This was evidenced in Chapter 14, in that the technocentric ideology in Case study one (the WWF-UK Formal Education Team) and Case study two (the ESD-J) has informed transformative practice. On the other hand, ecocentric ideology in Case study three (the Schumacher College) and Case study four (Ikaruga Kousha) has informed transmissive practice. This is because the practice informed by the ecocentric ideology focused on the dissemination of radical ideas (the Schumacher College) or traditional ideas (Ikaruga Kousha) about the environment, as compared with mainstream knowledge. By contrast, practice informed by the technocentric ideology, as in the other two case studies was

observed as being focused on reforming the current situation and thus tended to be transformative in nature.

16.1.3 Finding Three: Both conceptions of freedom (positive freedom and negative freedom), as they relate to educational practice, can be found in the two different ideological approaches and in both the countries studied. However, positive freedom approach has emerged as being problematic in each case.

The evidence from Chapter 13, 14 and 15, illustrated that positive freedom is not confined to one particular perspectives of context or rationalities of change, and neither is negative freedom. That is to say, both of these phenomena could be found in two countries studied in this research. As seen in Chapter 14 (See Figure 14.1), positive freedom in environmental education practice was found in the Schumacher College and to some extent in the ESD-J's practice in Japan. That is to say, in both these institutions practice had a tendency to be disseminated from the top-down, with limited opportunities for the learners to have any impact on the subject matter. By contrast, the WWF-UK Formal Education Team encouraged participants to actively engage in their learning process by putting forward their own ideas for the curriculum content. In the case of Ikaruga Kousha, although their apprentices were not expected to bring new insights to the skills learning process, they were encouraged to learn by trial and error and hence this could be construed as a form of negative freedom.

Amongst those two approaches in different ideologies and in different countries, the both case oriented to positive freedom approach appeared to be ineffective. For example, in the ESD-J, centralised management was falling apart, and local NGOs in Japan and in Asian countries were confused. Also in the case of the Schumacher College, some participants were not satisfied with the conventional style of teaching in the college such as lecture style.

From this, it could be argued those cases, which embrace positive freedom, are more likely to be problematic and ineffective.

16.1.4 Finding Four: Ineffective environmental education may result if key variables are understood differently by different stakeholders.

As evidenced in Chapter 15, in both the ESD-J and the Schumacher College, competing perspectives of the context resulted in ineffectiveness in their practice. For example, the role that the ESD-J chose to take was not sufficiently understood by the partners from other Asian countries who were in collaboration with them. The non-Japanese participants in the ESD-J projects expected to be led, perhaps because their societies were more hierarchical. These misunderstandings amongst the participants at the ideological and contextual levels appear to have led to the ineffectual practice that was witnessed. In a similar vein, the Schumacher College regards itself as an institution which attempts a transformative learning, however, reports from some of the participants on their courses would suggest that their practice is of a transmissive nature, in that the learning is delivered in a formal lecture format. What is apparent here is that there is a somewhat confused perspective at the ideological level, even though the institution purports to have a very clear ideological outlook.

16.2 Suggestions for Achieving More Effective Environmental Education Practice

Following on from the above findings, three subsections are developed in order to present suggestions for practice (16.2.1, 16.2.2 and 16.2.3). Suggestions for new policy initiatives will be set out in section 16.3. These recommendations are put forward in accordance with the analytical framework of effectiveness as presented in Chapter 1.

16.2.1 Recommendation One: Greater clarity of ideological and theoretical positions taken.

In order to implement effective environmental education, there is a need to clarify the ideological and theoretical positions taken by an organisation/institution which undertakes it. Whilst organisational aims have the purpose of describing what is to be achieved, the theoretical and ideological positions refer to the organisation's view of nature, technology and capitalism and so on (See the discussion of environmental ideologies in Chapter 2), which inform the aims and practices. With a greater clarity of the ideological and theoretical positions, practice would be more efficient and effective.

16.2.2 Recommendation Two: Consideration of the perspective of contexts

There is a need to consider the significance of the context in which an organisation/institution carries out its practice. Regarding contexts, the various perspectives introduced in Chapter 3 such as the: civilisational, anthropological, sociological perspectives and rationalities based on cultural theory, need to be considered. With greater understanding of the context in which practice takes place, the possibilities for efficiency and effectiveness would be enhanced. In particular, when education crosses boundaries from Western contexts to non-Western contexts, and *vice versa*, careful consideration is needed to avoid ineffectiveness.

16.2.3 Recommendation Three: Negative freedom approach

Among the four case studies, the WWF-UK and Ikaruga Kousha have adopted negative freedom as their educational approach, whereas the ESD-J and the Schumacher College have taken positive freedom as theirs. According to the analysis of effectiveness in Chapter 15, those cases that have embraced positive freedom have tended to be ineffective in at least some part of their practice. It could be argued that under these circumstances education for

sustainable development takes the form of the promulgation of an idea or faith, at the expense of learners having opportunities to originate and share ideas to create best practice. The WWF-UK have been using a negative freedom approach, whereby they have offered advice and guidance from the top, but allowed the participating organisations to evolve their practice in ways the best suit their situations. This discussion will be further addressed in the next section which considers recommendations for policy.

16.3 Suggestions for More Effective Environmental Education Policy

This research was evidence-based and one of its main goals was to inform policy-makers on how to improve environmental education, after a synthesis of the findings (chapter 15). Drawing on the findings above (16.1) and taking into consideration the current situation in terms of policy, the following three subsections present suggestions for improved policy in the environmental education field (16.3.1, 16.3.2 and 16.3.3).

16.3.1 Recommendation One: Giving support to a variety of ideological perspectives

As seen in Chapter 13, the case studies shows that organisations committed to environmental education have been informed by a wide range of environmental ideologies as two case studies in each country have demonstrated two opposite poles of ideology-classification. More specifically, two case studies (Case study one: the WWF-UK Formal Education Team and Case study two: the ESD-J) are explicitly committed to education for sustainable development; and the other two cases have doubts about technocentric ideologies; for example, the case of Schumacher College is more focused on deep ecology and Ikaruga Kousha was implicitly implementing sustainability in communalism in their carpentry works. That is to say, it is difficult to generalise about the tendency of the environmental ideologies and it is evidenced that the existence of various

possible environmental ideologies in environmental education needs to be supported, at least, taken account of in policy-making.

16.3.2 Recommendation Two: Policy in environmental education should take into account contextual variety.

Findings have shown that the contextual variety is important in considering environmental education practice. Although it might be expected that two Japanese case studies would be broadly similar and likewise two British organisations, this turned out not to be the case. That is, as described in Chapter 13, 14, and 15, there were notable similarities that cut across the cultural divide: i.e. the perspective of anthropological and sociological contexts. Therefore it is important not to oversimplify or over-generalise about the different context. Nevertheless, there are other cultural aspects such as view of civilisation and rationalities in cultural theory, e.g. the Confucian tradition in Japan, which need to be understood when instigating or promoting an environmental education programme.

16.3.3 Recommendation Three: Promoting simultaneous use of top-down and bottom-up approaches

Policy initiatives generally have tended to be implemented from the top-down. This is particularly apparent in the work of the ESD-J. As have been discussed, on the practical level, the WWF-UK Formal Education Team has supported the use of top-down and bottom-up approach together and the evidence suggest that they have been quite successful. The bottom-up approach is relatively free of "assumptions about cause and effect, about hierarchical or any other structural relations between actors and agencies or about what should be going on between them" (Hill, 2005 p.183). However, policy initiatives by definition come from the top. Therefore taking into account the evidence from the practice of the WWF-UK, this research would argue that simultaneous employment of top-down and

bottom-up approaches involving continuous dialogue in both directions would be most effective modus operandi. This point has been comprehensively illustrated by the cooking metaphor (Hill, 2005) in the following box (Box 16.1).

Box 16.1: Alternative ways in which discretionary elements occur in implementation: a homely example

Imagine a two-person household in which one person undertakes to cook a meal to be shared with the other. There are then a variety of possibilities, of which the following are the main ones:

1. That the cook is quite free to choose what to do.
2. That the cook is free to choose what to do within constrains such as the size of the budget, the availability of ingredients, the amount of time available and some knowledge of the likes and dislikes of the other.
3. That the ingredients were chosen in advance, but that the cook then still has considerable latitude about how to use them.
4. That the recipe was chosen in advance, which means that what is to be done is closely prescribed (but following a recipe may still involve judgements about when elements are sufficiently well cooked, about seasoning 'to taste', etc.).
5. Variants of the above but with negotiations during the process – 'Would you like this?', 'How do you think I should deal with that?', 'Taste this and tell me what you think of it' and so on.

In the author's own household versions of all those five options occur, with the last very common.
(Hill 2005 p.186)

As in the example, it is almost impossible to have the first option which is "totally free to cook anything". To have limited options derived from available natural capital (ingredients etc) and social capital (skills etc) are more likely to happen in real life. As seen in the analysis of case studies, to increase these opportunities is essential for environmental education practice which orients towards a negative freedom approach. Thus the policy in environmental education should support raising these opportunities.

16.4 Theoretical Contribution

This section presents the theoretical contribution made by this research. It reviews the theoretical framework set out in the earlier literature review (Part I) and discusses the implications that have emerged from the analysis of the case-studies.

16.4.1 Positive and negative freedom approaches in environmental education

The literature review in Chapter 1, constructed a theoretical categorisation of environmental education by drawing on Berlin's (2002) conceptions of positive and negative freedom. In terms of theories in environmental education by considering aspects of methodology, policy, paradigm, and ontology, those based on positive freedom have been categorised as having an absolutist approach and those based on negative freedom as having a pluralist approach.

The case studies were investigated with the aim of exploring the opperationalisation of theory into practice with the presupposed theoretical framework and to find evidence of it. It was found that the technocentric case studies in the UK and Japan, which embraced a socially-critical perspective, are not always oriented towards a positive freedom approach of environmental education and also the ecocentric case studies are not always oriented towards with negative freedom approach. What was found in the case studies in this research was that freedom has to do with the choice of practice rather than the choice of theoretical and ideological views. That is to say, the technocentric oriented theories can be operationalised as both positive and negative freedom in practice and so can those which are ecocentrically oriented.

16.4.2 The analytical framework for evaluating the effectiveness of environmental education

The analytical framework of this research was drawn from the concepts of double-loop learning (Scott & Gough 2003, citing Argyris & Schön 1978) and root metaphor (Bowers 2002, citing Brown 1978) in order to analyse critically the effectiveness of environmental education practice. Within the framework, the focus of the analysis was on three layers of variables in practice, these being: 1. the perspective of contexts, 2. theoretical and ideological viewpoints, and 3. practice. These three layers were covered in the literature reviews (Chapters 1, 2 and 3), where the various manifestations regarding these were discussed. For example, with regards to the perspective of contexts, civilisation, sociological, anthropological and cultural differences of perspectives were considered. For the theoretical and ideological dimensions, the various categorisations of environmentalism were reviewed. Regarding practice, freedom and choice of education approaches, such as transformative and transmissive approaches, were discussed. This analytical framework of effectiveness enabled the analysis of each of the case studies with regard to practice, It appeared that such practice tended to be ineffective where understandings of these three dimensions were contested.

16.4.3 The dimension of practice in environmental education

In Chapter 1, two dimensions of freedom and education practice (Figure 1.3) were presented, featuring two poles of freedom (i.e. positive freedom and negative freedom) and education practice (i.e. transformative and transmissive). This framework was employed to analyse the effectiveness of environmental education according to the three layers which were discussed above. As seen in the recommendations regarding policy, for practice that was orientated towards positive freedom, it was difficult to achieve effective forms that incorporated the other dimensions, i.e. the perspective of the contexts and the theoretical and ideological views. On the other hand, the practice oriented towards the negative freedom was to some extent able to capture these two other dimensions. This suggests that

approaches drawing on negative freedom are more successful in achieving effectiveness in environmental education as they are focused on learners' learning rather than a somewhat authoritarian desire to transmit knowledge. Notwithstanding this, it could be argued that positive freedom orientations can still play in important role transmitting ideas with regards to the pressing concern of environmental education, and thus should not be overlooked.

16.5 Methodological Reflection

When David Cameron, the Leader of the Conservative Party in the UK, visited the Centre for Research in Education and the Environment (CREE) at the University of Bath, in order to discuss environmental and sustainability issues in relation to education, he spent time listening to a poster presentation of this research. He asked a question: "So which one (which ideologies) is suitable for environmental education in the UK?". In order to answer his question, synthesised knowledge from systematically operated research is required. That is what this research has sought to do. At the time of his visit this research was incomplete, and the researcher could offer no answer to his question. This research can now offer a short summary for busy politicians like him, drawn from the findings and recommendations for environmental education presented above.

These findings and recommendations were achieved by an evidence-based approach with in-depth qualitative inquiry. Compared evidence-based approaches handling a vast amount of quantitative data, in the qualitative approach in this research, the literature review and the construction of theoretical framework played a significant role to form the systematic investigation. More specifically, the theoretical framework (ideologies and the perspective of context) was a key for selecting and analysing case studies. Also, the analytical framework for evaluation (three layers of variables) was significant since the compound

analysis of ‘operationalisation of theory into practice’ could not be accomplished without it. That is to say, for future studies based in this evidence-based approach with in-depth qualitative inquiry, the theoretical framework needs to be well thought out, in order to form a systematic investigation and achieve robust, systematic knowledge.

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Appendix: Introduction to Japan

Location:

Japan is a long, narrow chain of islands stretching 3,300 kilometers north to south. Its northernmost point (in the Russian-occupied Northern Territories) is located at 45°33' north latitude, and its southernmost point is at 20°25' north latitude. More specifically, the location of Japan's area is comparable to that of Germany or California. Japan's northernmost islands are located on similar geographical latitude as Milan or Portland, while its southernmost islands are on similar latitude as the Bahamas.

Climate:

Due to the large North South extension of the country, the climate varies strongly in different regions. The climate in most of the major cities, including Tokyo, is temperate to subtropical and consists of four seasons. The winter is mild and the summer is hot and humid. There is a rainy season in early summer, and typhoons hit parts of the country every year during late summer. The climate of the northern island of Hokkaido and the Sea of Japan coast is colder, and snow falls in large amounts. In Okinawa, on the other hand, the mean temperature of January is a warm 16 degrees Celsius.

Map:

Japan consists of several thousands of islands, of which Honshu, Hokkaido, Kyushu and Shikoku are the four largest islands. Japan’s closest neighbours are Korea, Russia and China. The Sea of Japan separates the Asian continent from the Japanese archipelago.

Japan is divided into 47 prefectures:

1 Hokkaido
2 Aomori
3 Iwate
4 Akita
5 Miyagi
6 Yamagata
7 Fukushima
8 Ibaraki
9 Tochigi
10 Gumma
11 Chiba
12 Saitama
13 Tokyo
14 Kanagawa
15 Niigata
16 Toyama
17 Ishikawa
18 Nagano
19 Gifu
20 Fukui
21 Yamanashi
22 Shizuoka
23 Aichi
24 Shiga
25 Kyoto
26 Hyogo
27 Mie
28 Nara
29 Osaka
30 Wakayama
31 Tottori
32 Shimane
33 Okayama
34 Hiroshima
35 Yamaguchi
36 Kagawa
37 Tokushima
38 Ehime
39 Kochi
40 Fukuoka
41 Saga
42 Nagasaki
43 Oita
44 Kumamoto
45 Miyazaki
46 Kagoshima
47 Okinawa

(Source: http://www.japan-guide.com/list/e1002.html)

Population:

The population of Japan is about 125,000,000, including approximately two million foreign residents. More than half of the non Japanese population is of Korean descent.

Japanese era:

Period	Name	Description
-300 BC	Jomon	The early Japanese were gatherers, hunters and fishers.
300 BC-300	Yayoi	The intoduction of rice agriculture evokes the development of a social hierarchy and hundreds of small countries that started to unify into larger countries.
300-538	Kofun	**300** Japan is for the first time more or less united. Large tombs (kofun) were built for the deceased leaders.
538-710	Asuka	**538/552** Introduction of Buddhism. **604** Prince Shotoku's Constitution of seventeen articles is promulgated. **645** The Taika reform is introduced. The Fujiwara era starts.
710-784	Nara	**710** Nara becomes the first permanent capital. **784** The capital moves to Nagaoka.
794-1185	Heian	**794** The capital moves to Heian (Kyoto). **1016** Fujiwara Michinaga becomes regent. **1159** The Taira clan under Taira Kiyomori takes over the power after the Heiji war. **1175** The Buddhist Jodo sect (Pure land sect) is introduced. **1180-85** In the Gempei War, the Minamoto clan puts an end to Taira supremacy.
1192-1333	Kamakura	**1191** The Zen sect is intoduced. **1192** Minamoto Yoritomo is appointed shogun and establishes the Kamakura government. **1221** The Jokyu Disturbance ends a struggle between Kamakura

		and Kyoto resulting in the supremacy of the Hojo regents in Kamakura. **1232** A legal code, the Joei Shikimoku, is promulgated. **1274 and 1281** The Mongols try to invade Japan twice, but fail mainly because of bad weather conditions. **1333** The Kamakura bakufu falls.
1338-1573	Muromachi	**1334** Kemmu restoration: the emperor restores power over Japan. **1336** Ashikaga Takauji captures Kyoto. **1337** The emperor flees and establishes the Southern court in Yoshino. **1338** Takauji establishes the Muromachi government and a second emperor in Kyoto (Northern court). **1392** Unification of the Southern and Northern courts. **1467-1477** Onin war. **1542** Portuguese introduce firearms and Christianity to Japan. **1568** Nobunaga enters Kyoto. **1573** The Muromachi Bakufu falls.
1573-1603	Azuchi Momoyama	**1575** The Takeda clan is defeated in the battle of Nagashino. **1582** Nobunaga is murdered and succeeded by Toyotomi Hideyoshi. **1588** Hideyoshi confiscates the weapons of farmers and religious institutions in the "Sword Hunt". **1590** Japan is reunited after the fall of Odawara (Hojo). **1592-98** Unsuccessful invasion of Korea. **1598** Death of Hideyoshi. **1600** Tokugawa Ieyasu defeats his rivals in the battle of Sekigahara.
1603 - 1867	Edo	**1603** Ieyasu is appointed shogun and establishes the Tokugawa government in Edo (Tokyo). **1614** Ieyasu intensifies persecution of Christianity. **1615** The Toyotomi clan is destroyed after Ieyasu captures Osaka Castle. **1639** Almost complete isolation of Japan from the rest of the world. **1688-1703** Genroku era: popular culture flourishes. **1792** The Russians unsuccessfuly try to establish trade relations with Japan. **1854** Commodore Matthew Perry forces the Japanese government to open a limited number of ports for trade.
1868-1912	Meiji	**1868** Meiji restoration.

		1872 First railway line between Tokyo and Yokohama. **1889** The Meiji Constitution is promulgated. **1894-95** Sino-Japanese War. **1904-05** Russo-Japanese War. **1910** Annexion of Korea. **1912** Death of emperor Meiji.
1912-1926	Taisho	**1914-18** Japan joins allied forces in WW1. **1923** The Great Kanto Earthquake devastates Tokyo and Yokohama.
1926-1989	Showa	**1931** Manchurian Incident. **1937** Second Sino-Japanese War starts. **1941** Pacific War starts. **1945** Japan surrenders after two atomic bombs are dropped over Hiroshima and Nagasaki. **1946** The new constitution is promulgated. **1952** The Allied Occupation of Japan ends. **1956** Japan becomes member of the UN. **1972** Normalization of relations to China. **1973** Oil crisis.
1989-	Heisei	**1993** The LDP loses its majority in the diet. **1995** The Great Hanshin Earthquake hits Kobe. Sarin Gas attack in the Tokyo subway by AUM sect.

(Source: Japan-guide. com http://www.japan-guide.com/e/e2126.html)

Ministries in Japan:

Prime Minister's Offical Residence

Ministry of Foreign Affairs

Ministry of Finance

Ministry of Economy, Trade and Industry

Ministry of Health, Labour and Welfare

Ministry of Land, Infrastructure and Transport

Ministry of Justice

Ministry of Agriculture, Forestry and Fisheries

Ministry of Education, Culture, Sports, Science and Technology

Ministry of Internal Affairs and Communications

Ministry of Environment

Ministry of Defense

Education system in Japan:

The schooling years in the Japanese education system are segmented along the lines of 6 years- 3 years - 3 years - 4 years. More specifically, 6 years of primary or elementary school; 3 years of middle or junior high school; 3 years of high school; and 4 years of university (there are options for 2 year technical college, or 2 year junior college).

An elementary school (from 6 years) and junior high school (3 years) education, i.e. nine years of schooling are considered compulsory (see pages on legality of homeschooling).